MDS-B5

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model



US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	MDS-B3
MD Mechanism Type	MDM-2BL
Base Unit Type	MBU-2BL
Optical Pick-up Type	KMS-210A/J-N

SPECIFICATIONS

General

Power requirements AC 120 V, 60 Hz (for the U.S. and Canada), AC 220 to 230V, 50/60 Hz (for the European countries)
Power consumption 30 W
Operationg temperature 5°C to 35°C (41°F to 95°F)
Storage temperature –20°C to +55°C (–4°F to 131°F), without moisture condensation
Dimentions (w/h/d) About 212 × 139 × 375 mm (8 3/8 × 5 1/2 × 14 7/8 inches)
Weight About 5 kg (11 lb)

Laser characteristics

Laser Semiconductor laser (λ=780 ηm)
Emission duration: continuous
Laser output power Max. 44.6 µW*

* This output is the value measured at a distance of 200 mm from the objective lens surface on the optical pick-up block with 7 mm aperture.

Digital audio signal format

System MiniDisc digital audio system
Disc MiniDisc
Modulation format EFM (Eight to Fourteen Modulation)
Digital audio channel 2 channels, 1 channel
Sampling frequency 44.1 kHz
Error correction ACIRC (Advanced Cross Interleave Reed Solomon Code)
Rotation mode CLV (about 400 to 900 r.p.m.)

— Continued on next page —

MD RECORDER

MICROFILM

SONY®

Input connectors

Analog input

Connector	XLR-3, FEMALE
Input impedance	Approx. 10 kilohms, balanced
Reference level	+4 dBs (factory setting) (+4 dBs to −12dBs)

Digital input (COAXIAL)

Connector	RCA PHONO
Input impedance	75 ohms
Reference level	0.5 Vp-p

Digital input (AES/EBU)

Connector	XLR-3, FEMALE
Input impedance	110 ohms, balanced

Output connectors

Analog output (LINE)

Connector	XLR-3, FEMALE
Output impedance	Approx. 150 ohms, balanced
Reference level	+4 dBs (factory setting) (+4 dBs to −12dBs)
Maximum level	+24 dBs
Load impedance	More than 10 kilo ohms

Digital output (COAXIAL)

Connector	RCA PHONO
Output impedance	75 ohms
Refefence level	0.5 Vp-p
Load impedance	75 ohms

Digital output (AES/EBU)

Connector	XLR-3, MALE
Input impedance	20 ohms, balanced
Load impedance	110 ohms

Remote connectors

REMOTE (25P)

Connector	D-SUB 25-pins (female)
Format	Parallel
Input level	L: ground short (less than 100 ohms) H: open collector (high impedance)
Output level	L: less than 0.8 V (Imax: 50 mA) H: 10 k pull-up (5 V)
+5 V output	Imax. 200 mA*

* When connecting the keyboard, the total value of the +5 V output and keyboard power consumption must be lower than Imax. 200 mA.

RS-232C

Baud rate	Max 9600 (1200 baud/2400 baud/ 4800 baud/9600 baud, changeable by button operation)
Word length	8 bits
Stop bit	Stop bit 1/Stop bit 2, changeable by button operation
Parity	Parity Odd/Parity Even/Parity Off, changeable by button operation

Audio characteristics

Frequency response	20 Hz to 20 kHz, ±0.5 dB
Signal-to-noise ratio	More than 88 dB (with A-weight filter, when playing back recordable disc) More than 95 dB (with A-weight filter, when playing back premastered disc)
Total harmonic distortion	Less than 0.05% (at reference level*, 1 kHz, when playing back recordable disc) Less than 0.05% (at reference level*, 1 kHz, when playing back premastered disc)
Wow and flatter	Below measurable limit (±0.001%, W.Peak)

* The reference level is the level at −20 dB from the full bit on the peak level meter scale.

Supplied accessories

Wired remote controller (1)
Connecting cable (1)
Keyboard template (1)
AC power cord (1)
Operation manual (1)

Design and specifications are subject to change without notice.

The laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

This caution label is located inside the unit.

CAUTION	;	INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL	;	USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDS ÆTTELSE FOR STRÅLING.
VARO!	;	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA DLET ALTTIINA LASERSÄTEILYLLE.
VARNING	;	LASERSTRÅLING NÄR DENNA DEL ÄR OPPNÅD OCH SPÄRREN ÄR URXOPPLAD.
ADVARSEL	;	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:
Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth Ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

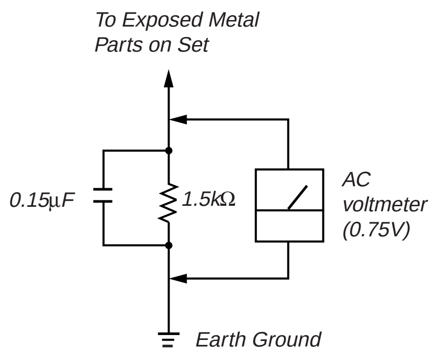


Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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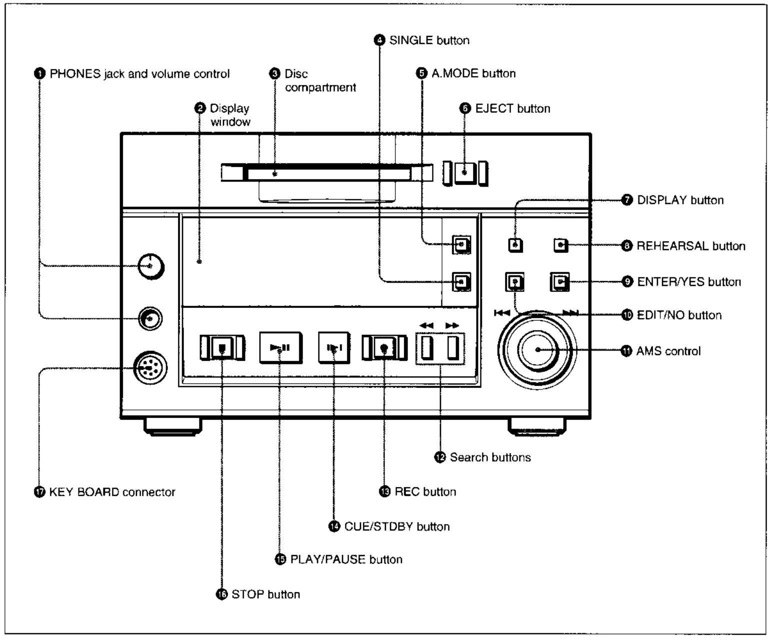
7. ELECTRICAL PARTS LIST

SECTION 1
GENERAL

This section is extracted from instruction manual.

Chapter 2 Function of Parts and Controls

2-1 Front Panel



❶ PHONES jack and volume control
Connects headphones. Use the volume control to adjust the sound level of the PHONES jack.

❷ Display window
Indicates the current MD deck operating status. While the deck is stopped, the disc title, total track number, and total recorded time are displayed. During playback, the track title and time information of the current track or the next track are displayed. When using a menu, the menu number and menu item are displayed.

❸ Disc compartment
Automatically loads an inserted disc.

❹ SINGLE button
Press to play only one track. "1" appears in the display window.

❺ A.MODE button
Selects the cueing mode. The following are selected in sequential order each time you press this button.

OFF: The cueing function is disabled. Playback starts when you press the PLAY/PAUSE button or select a track using the AMS control.

A.PAUSE: When you press the PLAY/PAUSE button or select a track using the AMS control, the MD deck locates the beginning of the track and pauses. Playback starts when you press the PLAY/PAUSE button.

A.CUE: When you press the PLAY/PAUSE button or select a track using the AMS control, the MD deck pauses whenever the audio signal rises above a specified threshold level. Playback starts when you press the PLAY/PAUSE button.

❻ EJECT button
Press to eject the disc from the disc compartment.

❼ DISPLAY button
During playback, press this button to select the following display contents:
- Remaining playing time and title of the current track
- Elapsed time and title of the current track
- Remaining playing time of the current track and the Program Play list during Program Play or the Instant Playback function
- Playing time and title of the next track

❽ REHEARSAL button
Press to play a portion of a track repeatedly. If you press this button during playback, the portion starting from that point is repeated. If you press the button while the deck is stopped, the beginning of the first track on the disc or the selected track is repeated.
During rehearsal playing, you can move the repeated portion forward or backward by turning the AMS control. Pressing the ◀◀ or ▶▶ button changes the playing interval.
After confirming the cue point or editing point using the rehearsal function, press the CUE STDBY button to pause the deck at the position where the rehearsal started or press EDIT/NO button to execute an editing function.

❾ ENTER/YES button
Press to execute an editing function.
You can also execute editing functions by pressing the AMS control.

❿ EDIT/NO button
Press to display the Edit menu or cancel an editing function.

⓫ AMS control
Turn to locate the beginning of a track.
When using the Edit menu or the Setup menu, turn this control to select the menu item and press it to select the setting.

⓬ Search buttons
◀◀: Hold down this button during playback to scan backward while monitoring the sound.
▶▶: Hold down this button during playback to scan forward while monitoring the sound.

⓭ REC (recording) button
Press for recording standby (recording pause). To start recording, press the PLAY/PAUSE button. The REC button lights when recording is paused or taking place.

⓮ CUE/STDBY (standby) button
Press to return to the position where you last pressed the PLAY/PAUSE button. After finding the position, the MD deck enters playback pause. Use this button to check or return to a cueing position.

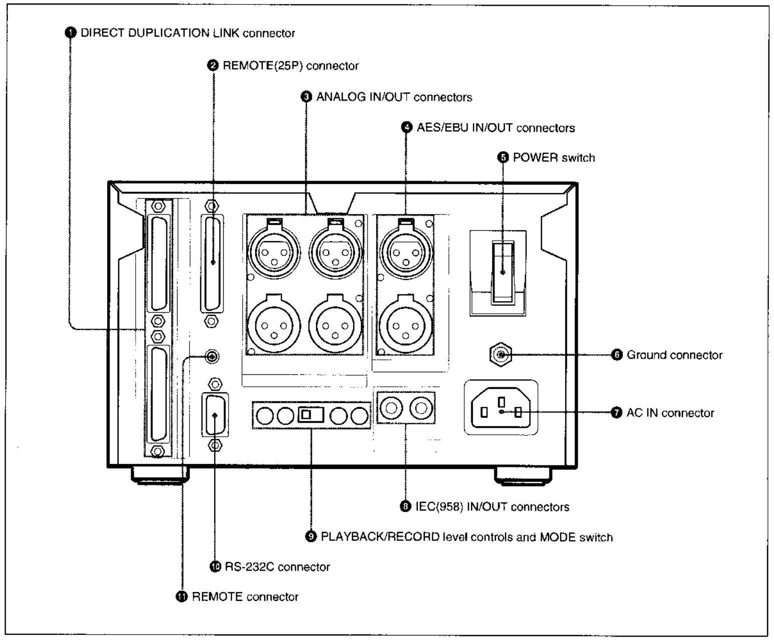
⓯ PLAY/PAUSE button
Press to start playback or recording.
Press during playback to temporarily pause the MD deck; press again to cancel pause.
The PLAY/PAUSE button lights during playback or recording. It flashes while the MD deck is in playback pause or recording pause.

⓰ STOP button
Press to stop playback or recording.

⓱ KEYBOARD connector
Connects any IBM keyboard for control of the MD deck using the supplied keyboard template.
This connector has a cap for protection. Remove the cap only when connecting a keyboard.

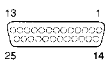
Note
While using the keyboard, turning the MD deck off, then turning it on again quickly may cause the keyboard to malfunction. If this occurs, unplug the keyboard cord and plug it again.

2-2 Rear Panel



❶ DIRECT DUPLICATION LINK connector
Used for daisy chaining multiple MDS-B5 decks for copying ATRAC compression data at the maximum of about four times the normal recording rate. You can copy the same data simultaneously on up to ten MDS-B5 decks.

❷ REMOTE (25P) connector
Connects to external equipment for remote control.



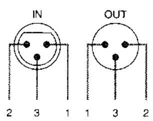
You can choose any of four pin assignments, depending on the purpose.

See "Pin assignments for REMOTE (25P) connector" on page A-3.

❸ ANALOG IN/OUT connectors (XLR-type, 3-pin)
Input and output a two channels of analog audio signals.

Pin assignment

Pin No.	Signal
1	GND
2	HOT
3	COLD



❹ AES/EBU IN/OUT connector (XLR-type)
Input and output two channels of digital audio signals in AES/EBU format.

❺POWER switch
Press to turn on the MD deck. Press again to turn the MD deck off.

❻ Ground connector
Connects directly to ground.

❼ AC IN connector
Connects to an AC outlet with the supplied AC power cord.

❽ IEC(958) IN/OUT connector (RCA-type, phono)
Inputs digital audio signals for professional use (IEC958-TYPE1) or consumer use (IEC958-TYPE2). Outputs digital audio signals for consumer use (IEC958-TYPE2).

❾ PLAYBACK/RECORD level controls and MODE switch
Adjust the analog input and output reference level during recording or playback. Adjust the level of each channel (CH-1(L)/CH-2(R)) by turning the control with a flat screwdriver.

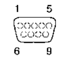
MODE switch
Selects monaural or stereo mode for the analog input/output signal.
When MONO is selected during playback, the signals of channel 1 and 2 are mixed and lowered to below −6 dB, then output from ANALOG OUT CH-1(L) and CH-2(R).
When MONO is selected during recording, the signals from ANALOG IN CH-1(L) and ANALOG IN CH-2(R) are mixed and lowered to below −6 dB, then recorded from both channels. The MODE switch just mixes the input and output signals and has nothing to do with the monoaural recording mode based on the MiniDisc format.

For the monoaural recording mode, see "To record in monoaural mode" on page 4-2.

Note

If a signal is recorded from only one ANALOG IN connector in monaural mode, the recording level will be −6 dB lower than that recorded in stereo mode. In this case, use the PLAYBACK/RECORD level control to bring the recording level up to that of stereo mode.

❿ RS-232C connector

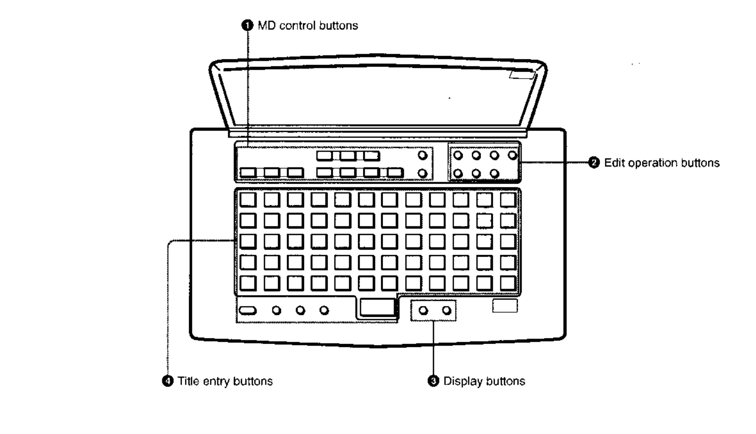


You can use a personal computer connected to the MDS-B5's RS-232C connector to control the MDS-B5 including following operations:
- Button operations
  PLAY/PAUSE, STOP, REC, EJECT, PREVIOUS, NEXT, CUE STDBY
- Direct track access
- Selecting menu functions
  Selecting the timing for the end-of-message (EOM) tally signal output, setting the AUTO PAUSE and AUTO CUE functions, setting the LevelSync function, and selecting the input signal
- Displaying time and character data and messages on an external computer

See "RS-232C Protocol" on page A-5 for details.

⓫ REMOTE connector
Connects the supplied remote controller.

2-3 Remote Controller



❶ MD control buttons
- A.MODE (Cueing mode)
- SINGLE (Single-track playback)
- REHEARSAL (Rehearsal playback)
- ▶II (play/pause)
- I▶I (cueing/standby)
- ■ (stop)
- I◀◀ (previous)
- ▶▶I (next)
- ◀◀ (rewind)
- ▶▶ (fast forward)
- ● (record)

❷ Edit operation buttons
- ERASE (erasing tracks)
- DIVIDE (dividing tracks)
- COMBINE (combining tracks)
- MOVE (moving tracks)
- UNDO (cancelling the last operation)
- ENTER (ENTER/YES button)
- CANCEL (EDIT/NO button)

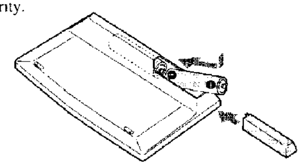
❸ Display buttons
- SCROLL (viewing the rest of the title during playback)
- DISPLAY (changing the display mode)

❹ Title entry buttons
- NAME (entering title entry mode)
- CAPS (uppercase letters, numbers, symbols)*
- SML (lowercase letters, numbers, symbols)*
- ☐ (unmarked button; space button)
- character/numeric buttons (60 buttons)

* The CAPS and SML buttons light up when activated.

Installing batteries in the remote controller

Insert two R6 (size-AA) batteries, making sure the batteries are aligned with the + and – marks for proper polarity.



When to replace batteries

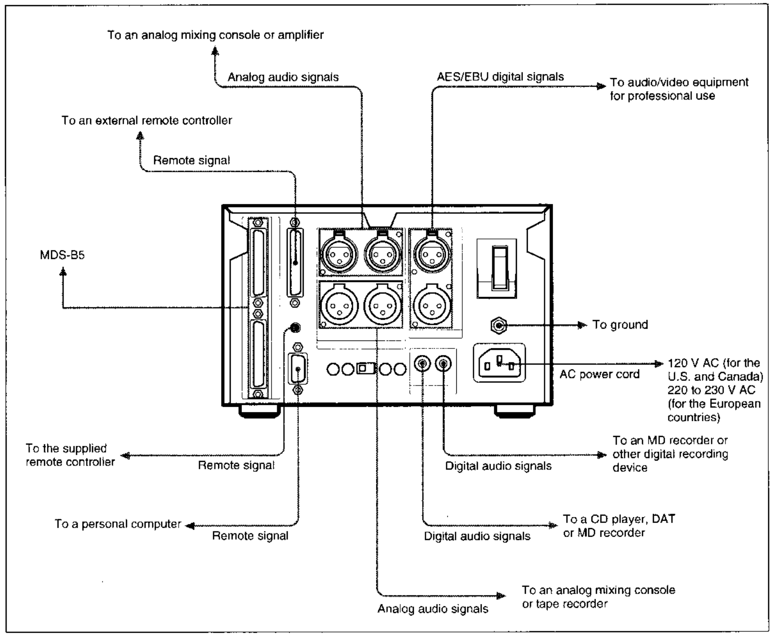
The service life of the batteries are for about 6 months. Replace the batteries when they run down and the remote controller cannot control the MD deck any more.

3-2 Connections

3-2-1 Precautions

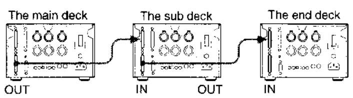
- Turn off all equipment before connecting or disconnecting any cables.
- Insert all electrical plugs firmly since incomplete connection may cause noise.
- Use a cord somewhat longer than needed to prevent the plug from being pulled out when jarred or shaken.

3-2-2 Basic Connection Examples



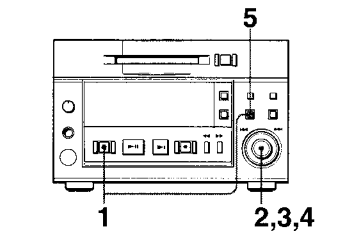
3-2-3 Connection for Direct ATRAC Data Copying

You can daisy chain multiple MDS-B5 decks through the DIRECT DUPLICATION LINK connectors to copy the ATRAC compression data at about four times the normal recording rate, as well as simultaneously on up to ten MDS-B5 decks.
To use the direct ATRAC data copy function between the main deck (which plays the original MD) and the sub deck (which records the data), connect the DIRECT DUPLICATION LINE OUT connector on the main deck to the DIRECT DUPLICATION LINE IN connector on the sub deck using the specified cable.
To make more than two copies of an MD using the direct ATRAC data copy function, daisy chain the sub decks using the DIRECT DUPLICATION LINE OUT and DIRECT DUPLICATION LINE IN connectors on each deck and the specified cables. The last sub deck in the chain must be specified as the "end" deck in the Setup menu.



Specifying an MDS-B5 as the main, sub, or end deck

To specify an MDS-B5 as the main, sub, or end deck when using the direct ATRAC data copy function, do the following Setup menu procedure.



1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears in the display window.

2 Turn the AMS control until the menu item F05 ("Dup Main", "Dup Sub", "Dup End", or "Dup Off") appears in the window.



3 Press the AMS control.
The item flashes and you can change the setting.

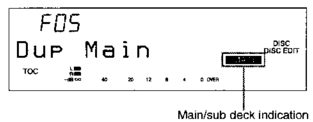
4 Turn the AMS control to the item to be set, and press the AMS control to select it.
When using the direct ATRAC data copy function, each MDS-B5 in the daisy chain should be specified as one of the following units:
"Dup Main": the main deck
"Dup Sub": a sub deck
"Dup End": the end deck
"Dup Off": copy-disabled through the DIRECT DUPLICATION LINK connector

5 Press the EDIT/NO button to exit from the Setup menu.

Chapter 3 Preparations

Main/sub deck indication

When you specify an MDS-B5 as a main, sub or end deck, the status of the deck appears in the display window. "MAIN" means the main deck and "SUB" the sub or end deck.



Main/sub deck indication

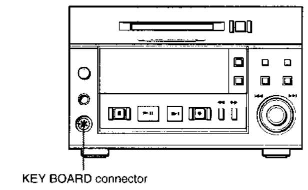
Disabling operation buttons on a sub or end deck

You can disable the operation buttons on a sub or end deck to prevent mistaken operations during high-speed dubbing.

See "7-10 Disabling the Buttons While Controlling Remotely" on page 7-10 for details.

3-2-4 Connecting and Setting the Keyboard

You can use any IBM keyboard to control the MD deck. The supplied keyboard template has the same key indications found on the front panel of the deck. Be sure to remove the cap from the KEY BOARD connector when connecting a keyboard.

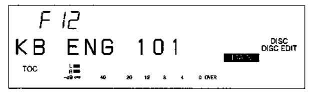

KEY BOARD connector

Specifying the keyboard type

Use the Setup menu to specify the keyboard type.

1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears in the display window.

2 Turn the AMS control to display the menu item F12 ("KB ENG 101" or "KB JPN 106") in the window.



3 Press the AMS control.
The indication flashes and you can change the setting.

4 Turn the AMS control to select either "KB ENG 101" or "KB JPN 106." Press the AMS control to select the item.

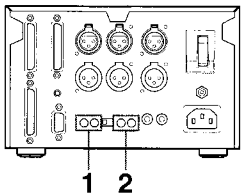
5 Press the EDIT/NO button to exit from the Setup menu.

Chapter 3 Preparations

3-4 Setting the Analog Input and Output Reference Levels

You can adjust the analog input and output reference levels during recording or playback within a range of +8 dB to −12 dB by turning the PLAYBACK and RECORD level controls on the rear of the MD deck. The analog input and output reference level is factory set at +4 dB (at −20 dB from full bit).

Setting the analog input and output reference levels



1 Play back a disc recorded at −20 dB from the full bit. Adjust the output level of the ANALOG OUT connectors with the PLAYBACK (CH-1/CH-2) level controls.

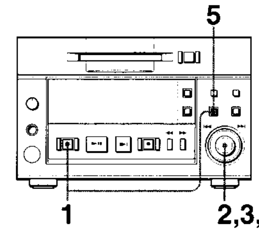
2 Input an audio signal to the ANALOG IN connectors, and during recording or recording pause adjust the output level for the ANALOG OUT connectors with the RECORD (CH-1/CH-2) level controls.

Note

Adjust the PLAYBACK and RECORD level controls with a flat screwdriver. Do not use excessive force when turning the screwdriver or touch the screwdriver to any part other than the PLAYBACK and RECORD level controls.

4-1 Selecting the Input Signal

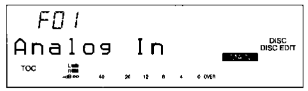
To select the input signal for recording, do the following Setup menu procedure.



1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears in the display window.



2 Turn the AMS control to display the F01: Analog In menu indication.



3 Press the AMS control.
The indication flashes and you can change the setting.

4 Turn the AMS control to one of the following items. Then press the AMS control to select the item.
"Analog In": Selects analog input from the ANALOG IN connectors
"DIN AES/EBU": Selects the digital input from the AES/EBU connectors
"DIN Coaxial": Selects digital input from the SPDIF IN connectors

5 Press the EDIT/NO button to exit from the Setup menu.

Recording track numbers automatically

During analog or AES/EBU signal input

Use the LevelSync function to automatically record a track number whenever the deck detects an inaudible portion.

To set the LevelSync function, see "7-2 LevelSync Setting (Track Marking Function)" on page 7-2.
To set the input reference level, see "3-4 Setting the Analog Input and Output Reference Level" on page 3-6.

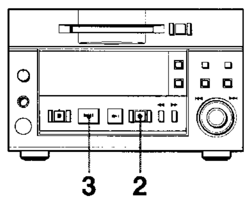
During digital input from the IEC(958) connectors

When recording from a consumer MD deck*, a CD player*, an MDS-B6P, or another MDS-B5, the MDS-B5 automatically records track numbers according to the level and U-bit of the digital input signal, regardless of the LevelSync setting.

* An MD deck or a CD player that is able to output digital signals with a Q-code added as a U-bit.

4-2 Recording Procedure

If the inserted disc contains recorded material, the MD deck will automatically record new material at the end of the existing material and with a new track number.



1 Select the input signal using the Setup menu (see page 4-1).

2 Press the REC button.
The MD deck enters recording pause. (The REC button lights up and the PLAY/PAUSE button flashes.)

3 Press the PLAY/PAUSE button.
Recording starts. (The REC and PLAY/PAUSE buttons light up.)

4 Play the sound source to be recorded.
The number of the track being recorded and elapsed recording time appear in the display.

Recording a track number manually during recording
Press the REC button at the place you want to add a track number.

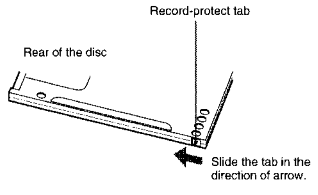
To stop recording
Press the STOP button.

To stop recording temporarily
Press the PLAY/PAUSE button.
To resume recording, press the PLAY/PAUSE button again.

To eject the disc
Press the STOP button to stop the MD, then press the EJECT button.

Preventing accidental erasure

Slide the record-protect tab to open the slot. To allow recording again, slide the tab to close the slot.



To record in monoaural mode

The monouaral recording mode allows you to record about twice as much material on the same amount of the tape than stereo recording mode. Use the Setup menu to choose monouaral recording mode.

1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears in the display.

2 Turn the AMS control to select "F04:Stereo Rec."

3 Press the AMS control.
The indication flashes and the display for setting the recording mode appears.

4 Turn the AMS control clockwise to display "F04:Monoral Rec," then press the AMS control.
The "MONO" indication lights up.

5 Press the EDIT/NO button to exit from the Setup menu.

About the sampling rate converter

A built-in sampling rate converter automatically converts the sampling frequency of various digital sources to the 44.1 kHz sampling rate of the MD deck. This allows you to record sources such as 32- and 48-kHz DAT or satellite broadcasts from the digital input connectors.

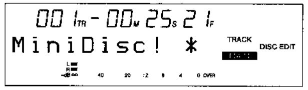
Note: In the "Varispeed ON" mode, it will be take about 10 seconds to set the recordable state after pressing the REC button.

4-3 Display Information During Recording

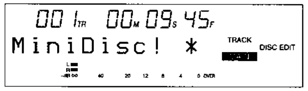
Changing the information display during recording

Each press of the DISPLAY button during recording changes the information on the display as follows:

Remaining recording time on disc



Recorded time of the current track



MD-related limitations

The recording system in your MD deck is radically different from those used in cassette and DAT decks and is characterized by the limitations described below.

"Disc Full" lights up even before the disc has reached the maximum recording time (60 or 74 minutes)
When 255 tracks have been recorded on the disc, "Disc Full" lights up regardless of the total recorded time. More than 255 tracks cannot be recorded on the disc.

"Disc Full" lights up before the maximum number of track is reached
Fluctuations in emphasis within tracks are sometimes interpreted as track intervals, incrementing the track count.

The total recorded time and the remaining time on the disc may not equal the maximum recording time (60 or 74 minutes)
Recording is done in minimum units of 2 seconds each, no matter how short the material. The contents recorded may thus be shorter than the maximum recording capacity. Disc space may also be further reduced by scratches.

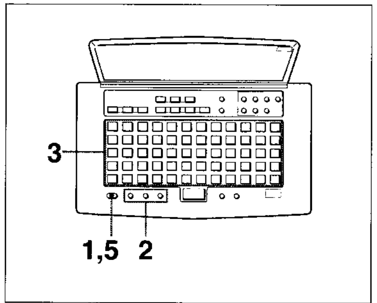
"TOC Reading" indication appears for a long time
If the inserted recorded disc is brand new, the "TOC Reading" indication appears on the display longer than for those that have been used.

Playback of a track of under 4 seconds may be accompanied by sound dropout at the start of the next track or mis-operation of the MD deck.

4-4 Adding Disc and Track Titles

Use the title function to add titles to your own discs and tracks using the character and numeric buttons on the remote controller. The maximum number of characters for all titles on a disc is 1,792.

Adding a disc or track title



1 Press the NAME button.
The display changes to title-entry mode.

To add a disc title
Enter a disc title while the MD deck is stopped.

To add a track title
You can add a track title when (1) the MD deck is playing or recording a track; (2) when the MD deck is in playback pause, or (3) when the MD deck is stopped on the track to be entitled.

2 Press either CAPS (uppercase) or SML (lowercase) to select the type of characters to be entered.

3 Enter the disc or track title with the character and numeric buttons on the remote controller.

4 Repeat steps 2 and 3 until the entire title appears in the display.

To change a character entry
Press the ◀◀ or ▶▶ button to the character to be changed. The character will flash. Press the CANCEL button and repeat the step 2 and 3.

5 Press the NAME button to record the title on the disc.

To cancel the title entry process
Press the ■ button.

Note

If "Protected" appears in the display
The record-protection slot on the disc is open and titles cannot be written to the disc. To add titles to the disc, eject the disc and close the slot.

Erasing a disc or track title

Do the procedure below to erase a disc or track title using the remote controller.

1 Press the NAME button while the deck is playing or pausing on the track whose title is to be erased.
To erase the disc title, press the button while the deck is stopped.

2 Hold down the CANCEL button.

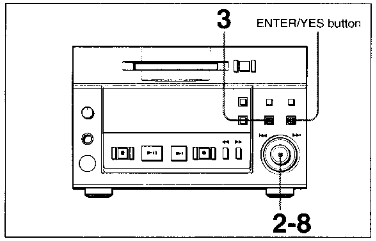
3 Press the ENTER button when the last character of the title has disappeared and the cursor remains.

4-5 Procedure for Direct ATRAC Data Copying

You can daisy chain multiple MDS-B5 decks and copy ATRAC compressed data through the DIRECT DUPLICATION LINK connectors to perform dubbing at about four times the normal dubbing speed. Up to ten MDS-B5 decks can be daisy chained. Do the procedure for direct ATRAC data copying on the main deck.

For details on the settings for direct ATRAC data copying and on specifying an MDS-B5 as a main deck, sub deck, or end deck, see "3-2-3 Connection for Direct ATRAC Data Copying" on page 3-3.

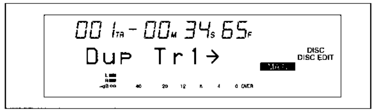
To do direct ATRAC data copy



1 Press the EDIT/NO button.
The Edit menu appears.

2 Turn the AMS control to select "015:Duplicate ?."

3 Press the AMS control.
The display for selecting the track to be copied using the direct ATRAC data copy function appears.



4 Turn the AMS control to display the track number to be copied.

5 Press the AMS control.
"ErrCheckOff" appears.
If you want error checking to be done automatically after dubbing is completed, turn the AMS control to select "ErrCheckOn."

6 Press the AMS control.
"Start: Yes" and "Cancel: No" alternate on the display.
The sub deck and end deck automatically enter recording pause, the REC button lights, and the PLAY/PAUSE button flashes.

7 Press the AMS control or the PLAY/PAUSE button.
"Duplicate" flashes and direct ATRAC data copying starts.
If you selected the "ErrCheckOn" , the sub deck and end deck automatically begin error checking after direct ATRAC data copying finishes. When error checking finishes, "DupComplete!" appears.

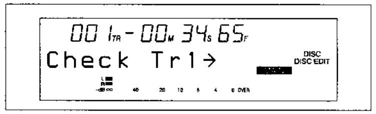
8 Press the AMS control or the ENTER/YES button.
The sub and end decks write the TOC information onto the disc, then exit from the Edit menu.

To perform error checking only

1 Press the EDIT/NO button.
The Edit menu appears.

2 Turn the AMS control to select "014:Err Check ?"

3 Press the AMS control.
The display for selecting the track to be checked appears.



4 Turn the AMS control to select the track number.

5 Press the AMS control.
Error checking starts.
After error checking finishes, the results are displayed.

6 If any error is detected, press the AMS control again. Up to ten positions where error has occurred are displayed.

4-6 Restrictions on Digital Copying

Track mode data recorded to a disc during recording

Track mode data consist of eight bits of information recorded in the user TOC (Table Of Contents) area on the disc indicating such disc-related conditions as copyright status, digital copy restrictions, disc use, and emphasis data.
Two track mode bits, d2 and d3, which indicate copyright status and restrictions on digital copies, are explained below.

Track mode

d1 [d2 d3] d4 d5 d6 d7 d8

d2: Copyright status 0: Copyrighted
1: Uncopyrighted
d3: Digital copy generation 0: Original
1: First-generation copy or later

When recording an input signal from the ANALOG IN or AES/EBU connector or an IEC958-TYPE1 digital input signal (for professional use)

The disc will be completely copy-enabled by the Serial Copy Management System. This status is indicated by the track mode bit values of d2=1 and d3=1.

When recording an IEC958-TYPE2 digital input signal (for consumer use)

Three types of discs can be produced, depending on the sub-code information included in the input signal.

Input signal		Track mode bit		During digital copying between two consumer MD recorders
Category code	Channel status bit 2	d2	d3	
Category codes other than that below	1 (Uncopyrighted)	1	1	Copy-enabled
	0 (Copyrighted)	0	1	Copy-disabled
General ACTUAL A/D	–	0	0	First-generation copy only

An MD which contains analog signals recorded on a consumer MD recorder can used to make a first-generation digital copy. No restrictions are placed on digital copying of MD recordings made on professional MD recorders, as long as the recording is made on an MDS-B5. When copying analog signals, you can use the LevelSync (track marking) function to record track numbers automatically.

See "7-2 LevelSync Setting (Track Marking Function)" on page 7-2.

The conditions for digital copying, as determined by track mode bits d2 and d3, are shown below.

When using two MDS-B5s

MDS-B5 → (IEC958 TYPE2) → MDS-B5

X11XXXXX → X11XXXXX Copy-enabled
X00XXXXX → X01XXXXX Copy-enabled
X01XXXXX → X01XXXXX Copy-enabled

When using a consumer MD recorder to make a copy of a disc recorded on the MDS-B5

MDS-503 → (IEC958 TYPE2) → MDS-503

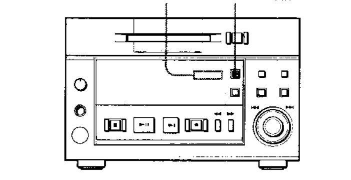
X11XXXXX → X11XXXXX Copy-enabled
X00XXXXX → X01XXXXX First-generation copy only
X01XXXXX → Copy-disabled

5-1 Overview of Playback Procedures

The MDS-B5 provides many playback functions that can be used for a variety of purposes. This section gives an overview of these functions and their application.

Cueing before playback (AUTO mode)

With each press of the A.MODE button on the front panel, you can select any one of the following AUTO mode settings: AUTO PAUSE, AUTO CUE, or off.



AUTO PAUSE function

If you press the PLAY/PAUSE button while AUTO PAUSE is on, the MD deck will cue to the beginning of the selected track, then pause. To start playback, press the PLAY/PAUSE button again. This function is useful for setting up successive tracks for playback when using multiple MD decks during a broadcast.

AUTO CUE function

If you press the PLAY/PAUSE button while AUTO CUE is on, the MD deck will pause after the inaudible portion before the beginning of the selected track at the point where the signal level actually rises. To start playback, press the PLAY/PAUSE button again. This function is useful for playing sound effects in a theater. Use the Setup menu to set the threshold level for detecting the rise in signal level.

See "7-6 Setting the Auto Cue Function" on page 7-6.

When neither the AUTO PAUSE or AUTO CUE function is selected

Pressing the PLAY/PAUSE button starts MD playback immediately without cueing.

To start playback instantly

You can memorize the beginning of selected tracks into the MD deck's built-in memory in order to begin playback the instant you press the PLAY/PAUSE button.

See "5-8 Starting Playback Instantly (Multi-Access Function)" on page 5-11.

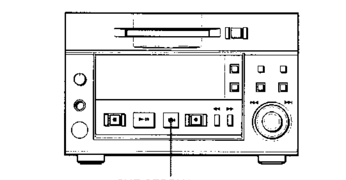
To play a single track

To prevent the unintentional playback of the next track, you can specify playback of one track at a time when pressing the PLAY/PAUSE button.

See "5-2-3 Playing a Single Track Only" on page 5-3.

Checking the playback starting point (CUE STDBY)

Pressing the PLAY/PAUSE button while playing a track establishes that position as the cue point.
Press the PLAY/PAUSE button again to monitor the playback. When you press the CUE STDBY button, the MD deck rewinds to the cue point and pauses.



Setting the cue point using the Rehearsal function

When you press the REHEARSAL button during playback, the MD deck begins playing the track section from that position for the duration specified in the Setup menu. While you monitor the sound, press the CUE STDBY button at the place where you want to place the cue point. The MD deck pauses at that point.

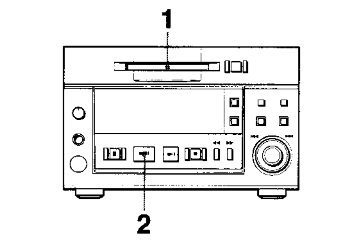
See "5-2-4 Rehearsal Playback" on page 5-3 and "7-7 Setting the Rehearsal Playback Function" on page 7-7.

Note

During shuffle play, the rehearsal playback function operates only within the currently playing track, and cannot be used to return to the position where you pressed the PLAY/PAUSE button last time.

5-2 Playback Procedures

5-2-1 Playing From the First Track on the MD



1 Insert the MD into the MD deck.
Insert the disc with the arrow pointing towards the MD deck. The deck grabs and loads the disc automatically.
Disc title, total number of tracks, and total playing time of the disc appear in the display window.

2 Press the PLAY/PAUSE button.
When both AUTO PAUSE and AUTO CUE are off: The MD deck starts playing the MD.
When either AUTO PAUSE or AUTO CUE is on: The MD deck enters playback pause after cueing to the beginning of the first track. To start playback, press PLAY/PAUSE button again.
Title, track number, and time information of the current track appear in the display.

To stop playback
Press the STOP button.

To stop playback temporarily
Press the PLAY/PAUSE button.
To resume playback, press the PLAY/PAUSE button again.

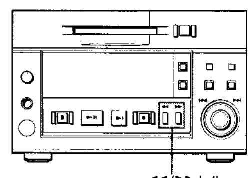
To eject the disc
Press the STOP button to stop playback, then press the EJECT button.

5-2-2 Locating a Specific Point (Search)

To find a specific point on the MD, use the ◄◄ and ►► buttons during playback to quickly scan forward or backward.

To forward scan the disc
Hold down the ►► button during playback. Playback will start again from the point at which you release the button.

To backward scan the disc
Hold down the ◄◄ button during playback. Playback will start again from the point at which you release the button.



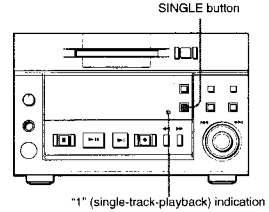
Note

Sound dropout may occur when scanning tracks created by editing functions.

5-2-3 Playing a Single Track Only

In single-track-playback mode, the MD deck plays only single track that you have selected. This prevents unintentional playback of the next track.
In single-track-playback mode, the MD deck stops when track playback ends, even if AUTO PAUSE or AUTO CUE has been selected.

To select single-track-playback mode
Press the SINGLE button.
"1" appears in the display window.
To turn off single-track-playback mode, press the SINGLE button again.



5-2-4 Rehearsal Playback

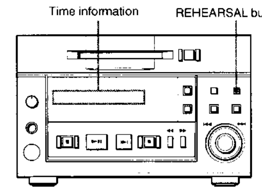
Press the REHEARSAL button to play back a portion of a track repeatedly. The rehearsal playback allows you to accurately position a cue point or edit point.
Pressing the CUE STDBY or EDIT/NO button sets the cue point or edit point.

If you press the REHEARSAL button during playback
The MD deck plays the track starting from the point at which you pressed the REHEARSAL button.

If you press the REHEARSAL button while the MD deck is stopped
The MD deck locates the first track on the MD or the beginning of the track you selected.

To change the playback portion during rehearsal playback
Turn the AMS control.
You can change the playback unit for rehearsal playback by pressing the ◄◄/►► buttons. When you press the ◄◄ or ►► button, the time unit flashes. Each press of the ◄◄ button selects the next time unit: "F (frame)", "S (second)", "M (minute)." And each press of the ►► button selects the unit in reverse direction.

To turn off rehearsal playback
Press the REHEARSAL button again.



Use the Setup menu to set the duration for rehearsal playback and the interval between repetitions.

See "7-7 Setting the Rehearsal Playback Function" on page 7-7.

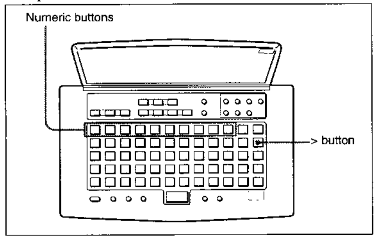
Chapter 5 Playback

5-3 Locating a Track

5-3-1 Locating a Specific Track

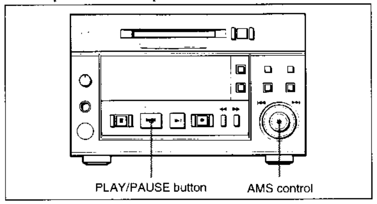
You can access specific tracks instantly by entering their track numbers with the numeric buttons on the remote controller or a keyboard.
If AUTO PAUSE and AUTO CUE are off, the MD deck begins playback immediately after locating the specified track.
If either AUTO PAUSE or AUTO CUE is selected, the MD deck changes to playback pause after cueing to the beginning of the specified track.

To specify track numbers greater than 10
Press the > button, then press the respective numeric buttons.
Example:
To locate the 15th track, press the > button once, then press 1 and 5.
To locate the 115th track, press the > button twice, then press 1, 1, and 5.



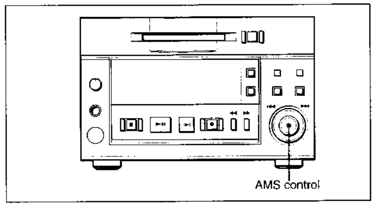
Locating a specific track from the front panel

To locate a specific track, turn the AMS control to display the track number while the MD deck is stopped. To start playback or to locate the beginning of the specified track, press the PLAY/PAUSE button.



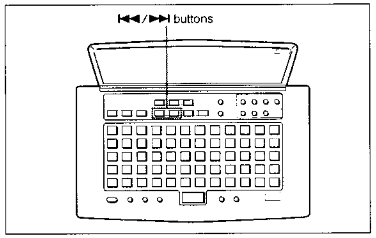
5-3-2 Locating the Beginning of a Track (AMS)

During playback or playback pause, turn the AMS (Automatic Music Sensor) control to quickly skip to any track before or after the current one.
Turn the AMS control clockwise to go to a higher track number, or turn it counterclockwise to go to a lower track number.
If AUTO PAUSE and AUTO CUE are off, the MD deck locates the beginning of the specified track and starts playback.
If either AUTO PAUSE or AUTO CUE is on, the MD deck locates the beginning of the specified track and enters playback pause.



Locating a specific track using the remote controller

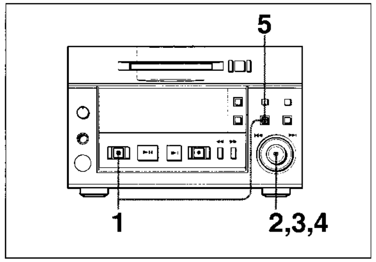
You can use the remote controller or the keyboard to locate the beginning of a track. To do this, press the |◀◀ or ▶▶| button during playback or playback pause.
Each press of the ▶▶| (or |◀◀) button increases (decreases) the track number by one; holding it down increases (decreases) the track number faster.



5-3-3 Preparing the Next Track During Playback

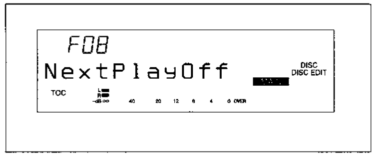
In Next Play mode on a single MD deck, you can locate the next track even during playback of the current track. After specifying Next Play mode in the Setup menu, track selection operations change from the current track to those for the next track.

Specifying Next Play mode



1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears.

2 Turn the AMS control until "F08:NextPlayOff" appears.



3 Press the AMS control.
The indication flashes to show that you can change the setting.

4 Turn the AMS control clockwise to change the display to "NextPlayOn," then press the AMS control.
Turning the AMS control counterclockwise changes the display back to "NextPlayOff."

5 Press the EDIT/NO button to exit from the Setup menu.

While you have selected the next track in Next Play mode
The title and time information of the current track temporarily changes to the that of the next track.

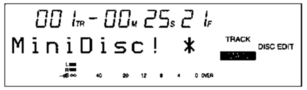
To keep the information on the next track displayed
Press the DISPLAY button so that "NEXT TRACK" appears.

5-4 Display Information During Playback

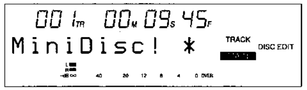
Changing the display information during playback

Each press of the DISPLAY button during playback changes the information in the display as follows:

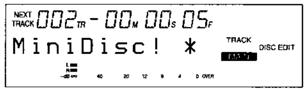
Remaining playing time and title of the current track



Elapsed playing time and title of the current track



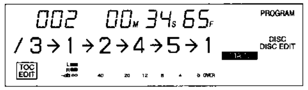
Playing time and title of the next track



Display information during Program Play and Instant Playback

During Program Play and Instant Playback, the MD deck displays the program list before it displays the next track's information

Remaining playing time of the current track and program list



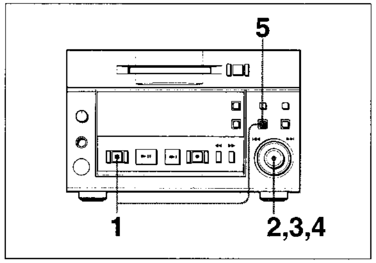
5-5 Playing Tracks Repeatedly

You can use the Setup menu to select Repeat Play mode.
The Repeat Play mode can be used with all other playback modes.

When either AUTO PAUSE or AUTO CUE is activated during Repeat Play

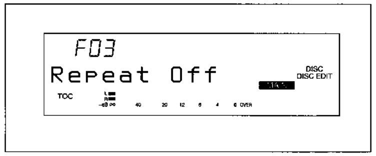
The MD deck enters playback pause at the beginning of the track (or when the audio signal rises).

To select Repeat Play mode



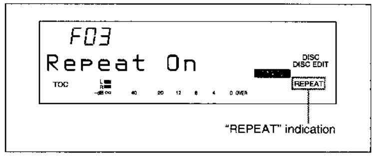
1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears in the display.

2 Turn the AMS control to display menu item F03 ("Repeat Off" or "Repeat On").



3 Press the AMS control.
The indication flashes to show that you can change the setting.

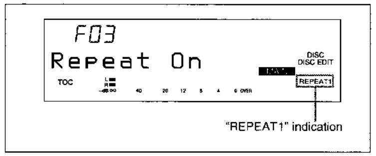
4 Turn the AMS control clockwise to display "Repeat On", then press the AMS control.
The "REPEAT" indication lights.
Turning the AMS control counterclockwise changes the setting back to "Repeat Off."



5 Press the EDIT/NO button to exit from the Setup menu.
Pressing the PLAY/PAUSE button starts the repeated playback of tracks.

To play only one track repeatedly

Press the SINGLE button during the Repeat Play mode.
The "REPEAT1" indication lights.



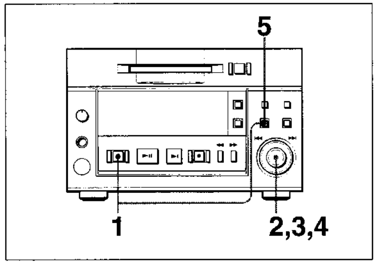
5-6 Program Play

Use the Program Play function to specify the playback sequence of multiple tracks.
- To turn the Program Play function on, use the Setup menu.
- To program tracks, use the Edit menu.

You can specify the playback sequence of up to 25 tracks. Program data may also be recorded to the TOC on the disc.

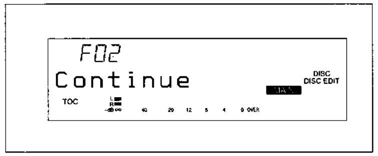
When either AUTO PAUSE or AUTO CUE is activated during Program Play
The MD deck enters playback pause at the beginning of each track in the program (or when the audio signal rises).

To select Program Play mode



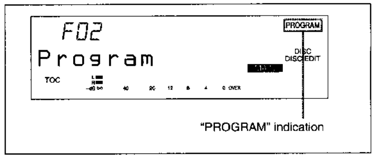
1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears in the display.

2 Turn the AMS control until menu item F02 ("Continue", "Shuffle", "Program", or "Multi Access") appears.



3 Press the AMS control.
The indication flashes to show that you can change the setting.

4 Turn the AMS control clockwise to display "Program," then press the AMS control.
"PROGRAM" lights up in the display.
Turning the AMS control clockwise displays "Continue", "Shuffle", "Program", and "Multi Access" in sequence. Turning the control counterclockwise displays the same items in reverse sequence.



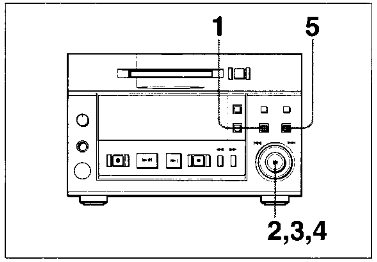
"PROGRAM" indication

5 Press the EDIT/NO button to exit from the Setup menu.
After making a program, press the PLAY/PAUSE button to start playing the program.

To play an entire program repeatedly

Select "F02:Program" and "F03:Repeat On" in the Setup menu. The programmed selections will play back repeatedly.

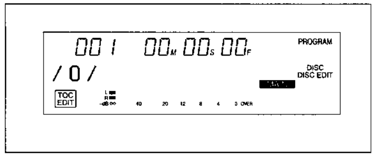
To make a program



1 Press the EDIT/NO button.
The Edit menu appears.

2 Turn the AMS control until "01 1:Program ?" appears.

3 Press the AMS control.
The display for programming tracks appears.

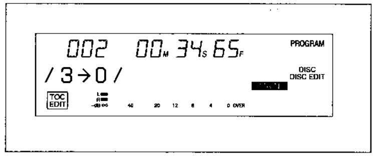


To delete tracks from a program
Press the ◀◀ or ▶▶ button until the track to be deleted begins flashing, then press the EDIT/NO button.

To change a programmed track number
Press the ◀◀ or ▶▶ button until the track number to be changed begins flashing, turn the AMS control to change the track number, then press the ENTER/YES button. Press the ◀◀ or ▶▶ again to change another track number.

To delete an entire program
Press the EDIT/NO button until all the tracks in the program are deleted.

4 Turn the AMS control to select a track, then press the AMS control.
The position for the second track begins flashing.
Repeat this step to program up to 25 tracks.



5 Press the ENTER/YES button to complete the program.

To specify track numbers using the numeric buttons

In step 4, use the numeric buttons on the remote controller or a keyboard to enter track numbers. After entering a track number, the next track position begins flashing immediately.

To change a part of the program
In step 3, press the ◀◀ or ▶▶ button until the track to be changed starts flashing. Use the numeric button(s) of the remote controller or the keyboard to change the track number, then press the ENTER button. Press the ◀◀ or ▶▶ button again to change another track number.

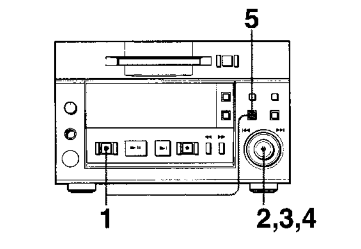
Chapter 5 Playback

5-7 Playing Tracks in Random Order (Shuffle Play)

You can play all the tracks on the MD in random order.
Use the Setup menu to select Shuffle Play mode.

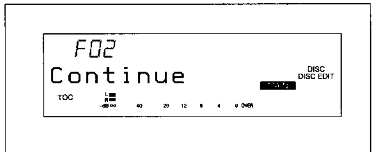
If the AUTO PAUSE or AUTO CUE function is activated during Shuffle Play
The MD deck enters playback pause at the beginning of each track (or when the audio signal rises).

To select Shuffle Play mode



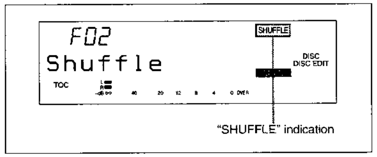
1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears in the display.

2 Turn the AMS control until menu item F02 ("Continue", "Shuffle", "Program" or "Multi Access") appears.



3 Press the AMS control.
The indication flashes to show that you can change the setting.

4 Turn the AMS control clockwise to display "Shuffle," then press the AMS control.
"SHUFFLE" lights up in the display.
Turning the AMS control clockwise displays "Continue", "Shuffle", "Program", and "Multi Access" in sequence. Turning the control counterclockwise displays the same items in reverse sequence.



5 Press the EDIT/NO button to exit from the Setup menu.
Press the PLAY/PAUSE button to start Shuffle Play.

To repeat Shuffle Play

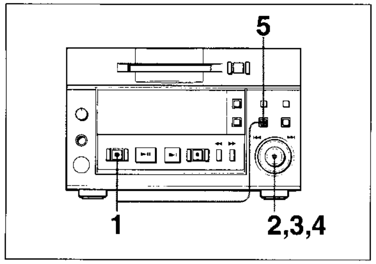
Select "F02:Shuffle" and "F03:Repeat On" in the Setup menu to play back all the tracks on the MD in random order.
After the MD deck plays back each track on the MD in random order, it plays them all again in random order.

5-8 Starting Playback Instantly (Multi-Access Function)

You can memorize the beginning of a track in the MD deck's built-in memory to start playback the instant you press the PLAY/PAUSE button.
• To turn the Multi-Access function on, use the Setup menu.
• To specify the tracks for instant playback, use the Edit menu.
You can memorize the beginning of up to 10 tracks.
The results of this procedure can also be recorded in the TOC on the disc.

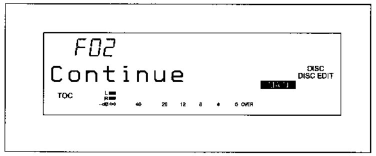
If the AUTO PAUSE or AUTO CUE function is activated during Multi-Access playback
The AUTO PAUSE and AUTO CUE functions do not work when you are using the Multi-Access function. This is because tracks entered numerically are played back instantly from the built-in memory, and thus the A.MODE button is disabled.

To specify the Multi-Access function



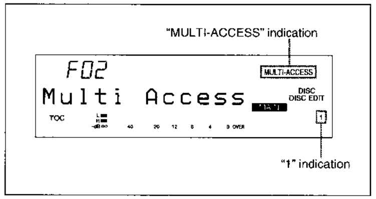
1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears in the display.

2 Turn the AMS control until menu item F02 ("Continue", "Shuffle", "Program", or "Multi Access") appears.



3 Press the AMS control.
The indication flashes to show that you can change the setting.

4 Turn the AMS control clockwise to display "Multi Access," then press the AMS control.
"MULTI-ACCESS" and "1" (single track play) light up in the display.
Turning the AMS control clockwise displays "Continue", "Shuffle", "Program", and "Multi Access" in sequence. Turning the control counterclockwise displays the same items in reverse sequence.

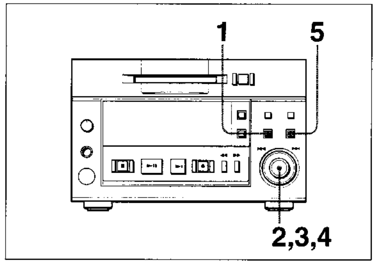


5 Press the EDIT/NO button.
After "Memorizing" lights up, the MD deck exits from the Setup menu.

To start Multi-Access playback

Enter the number of the track to be played with the numeric button(s) on the remote controller or keyboard.

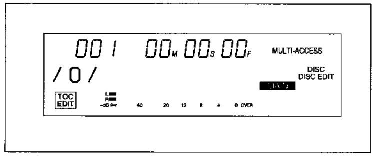
To specify tracks for Multi-Access playback



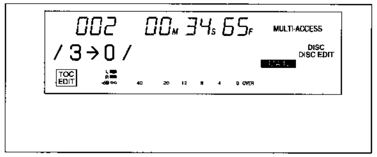
1 Press the EDIT/NO button.
The Edit menu appears.

2 Turn the AMS control to display "012:M-Access?"

3 Press the AMS control.
The display for specifying tracks appears.



4 Turn the AMS control to select a track, then press the AMS control.
The position for the second track begins flashing.
Repeat this step to specify up to 10 tracks.



5 Press the ENTER/YES button to complete the track specification procedure.

To delete tracks from the track list for Multi-Access playback

Press the ◀◀ or ▶▶ button until the track to be deleted begins flashing, then press the EDIT/NO button.

To change a track number

Press the ◀◀ or ▶▶ button until the track number to be changed begins flashing, turn the AMS control to change the track number, then press the ENTER/YES button. Press the ◀◀ or ▶▶ button again to change another track number.

To delete all tracks

Hold down the EDIT/NO button until all the tracks are deleted.

To specify track numbers using the numeric buttons

In step 4 , use the numeric buttons on the remote controller or a keyboard to enter track numbers. After entering a track number, the next track position begins flashing immediately.

To change a part of the track list

In step 3, press the ◀◀ or ▶▶ button until the track to be changed starts flashing. Use the numeric button(s) of the remote controller or the keyboard to change the track number, then press the ENTER button.
Press the ◀◀ or ▶▶ button again to change another track number.

Storing the beginning of a track

The beginning of a track is stored in the built-in memory when:

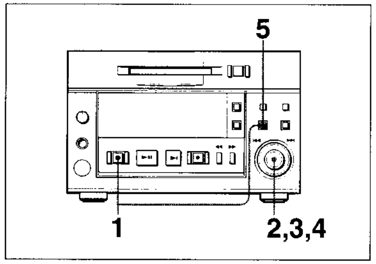
- you change the disc while the Multi-Access function is selected.
- you specify a track for Multi-Access playback using the Edit menu while the Multi-Access function is selected.
- you select the Multi-Access function in the Edit menu after specifying tracks for Multi-Access playback.

5-9 Varying the Playback Speed (Variable-Speed Playback)

You can vary the playback speed in a range between +12.5% and −12.5% of the normal speed.

- To select variable-speed playback, use the Setup menu.
- To specify the playback speed, use the Edit menu.

To select variable-speed playback mode

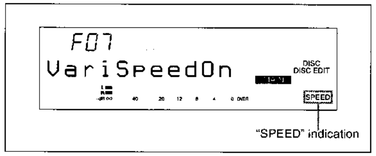


1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears.

2 Turn the AMS control until menu item F07 ("VariSpeedOff") appears.

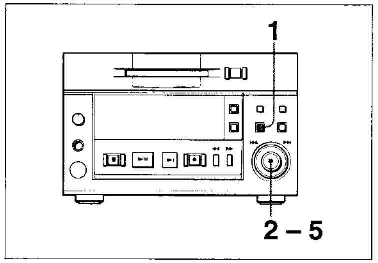
3 Press the AMS control.
The indication flashes to show that you can change the setting.

4 Turn the AMS control clockwise to change the display to "VariSpeedOn," then press the AMS control.
"SPEED" lights in the display.
Turning the AMS control counterclockwise changes the display back to "VariSpeedOff."



5 Press the EDIT/NO button to exit from the Setup menu.
After selecting the playback speed, press the PLAY/PAUSE button to start playback.

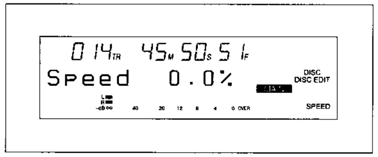
To select the playback speed



1 Press the EDIT/NO button.
The Edit menu appears.

2 Turn the AMS control until "013:Speed?" appears.

3 Press the AMS control.
The display for specifying the playback speed appears.



4 Turn the AMS control to set the desired playback speed.
Pressing the EDIT/NO button returns the setting to "0.0%."

5 Press the AMS control to exit from the Edit menu.

6-1 Overview of Editing Functions

6-1-1 Types of Editing Functions

Use the Edit menu to select the editing functions.
Press the EDIT/NO button, then turn the AMS control to display each edit function and its number one at a time.
There are 10 editing functions.

- (001) Name ? — Recording the title of tracks and discs
- (002) Erase ? — Erasing tracks
- (003) Move ? — Moving tracks
- (004) Combine ? — Combining tracks
- (005) Divide ? — Dividing tracks
- (006) All Erase ? — Erasing all tracks on a disc
- (007) Undo ? — Canceling the last editing operation
- (008) Cue Point ? — Setting cue points
- (009) Head Trim ? — Trimming the starting portion of a track
- (010) End Trim ? — Trimming of ending portion of a track

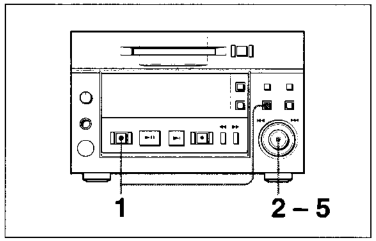
6-1-2 RAM Edit and Disc Edit

There are two editing modes.

Disc Edit mode: In this mode, the results of editing operations are recorded in the TOC on the disc.

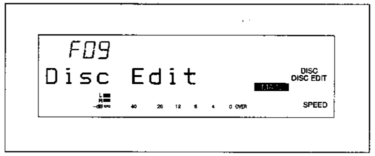
RAM Edit mode: In this mode, editing is done temporarily. This mode may be used to edit data on record-protected or premastered discs.

To select an editing mode



1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears.

2 Turn the AMS control until menu item F09 ("Disc Edit" or "Ram Edit") appears.



3 Press the AMS control.
The indication flashes to show that you can change the setting.

4 Turn the AMS control to select the editing mode. Turning the control clockwise to select "Disc Edit," and counterclockwise to select "Ram Edit."

5 Press the AMS control to exit from the Setup menu.

The function of the ENTER/YES button during editing operations

In Disc Edit mode, when you finish an editing operation and press the ENTER/YES button with the MD deck stopped, the MD deck writes the changes to the TOC on the disc.
If you don't press the ENTER/YES button after the editing operation, the TOC data will be written on the disc when you press the EJECT button or when you press the ENTER/YES button after another editing operation.

In Ram Edit mode, when you press the ENTER/YES button with the MD deck stopped, "TOC Write?" appears. Pressing the ENTER/YES button causes the MD deck to write the changes to the TOC on the disc. Pressing the EDIT/NO button at this time cancels the writing of the changes to the TOC on the disc.
If you don't press the ENTER/YES button after the editing operation, "TOC Write?" appears when you press the EJECT button. Pressing the EJECT button again or the EDIT/NO button causes the MD deck to eject the disc without writing the changes to the TOC on the disc.

6-1-3 Track Numbers After Editing Operations

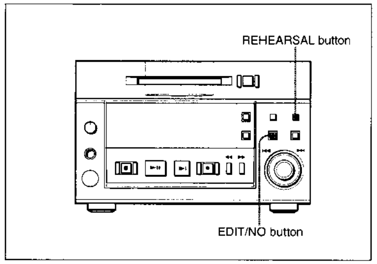
If an editing operation results in the deletion or addition of one or more tracks, the MD deck will automatically renumber the affected tracks to reflect that change. For example, if you erase track No. 2, all succeeding tracks will be renumbered, starting with track No. 3 (which becomes track No. 2).
If you do successive track erasures and relocations, it is recommended that you monitor the results of each operation by watching the titles and track numbers in the display and through Rehearsal playback in order to prevent editing errors.

6-1-4 Editing Operations During Rehearsal Playback

Pressing the REHEARSAL button during playback starts Rehearsal playback from that point.
After locating the part to be edited, press the EDIT/NO button to do select the editing function.

You can do the following editing functions during Rehearsal playback.

- (005) Divide ? — Dividing tracks
- (008-01) CP In ? — Recording cue points
- (009-01) HT In ? — Trimming of the starting portion of a track
- (010-01) ET In ? — Trimming of the ending portion of a track

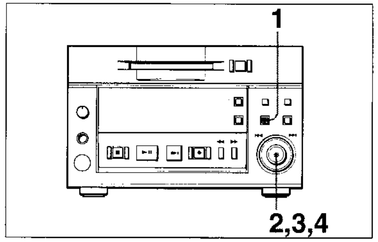


6-1-5 Undo Function

If you make a mistake in erasing or moving a track, the Undo function allows you to cancel the results of the last operation.

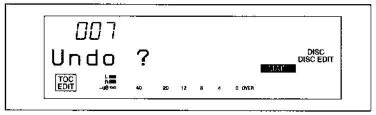
Note
You cannot cancel the last operation after the MD deck wrote the TOC data onto the disc.

To undo the last editing operation



1 Press the EDIT/NO button.
The Edit menu appears.

2 Turn the AMS control until "007:Undo ?" appears. This does not appear if the last operation was not an editing operation.



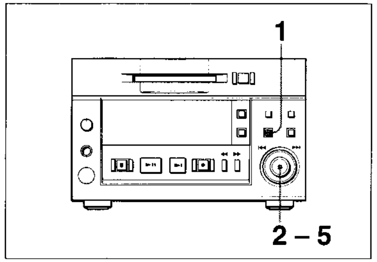
3 Press the AMS control.
A message will appear asking whether you want to cancel the last operation or not. For example, "Erase Undo ?" appears if the last operation was an erasure of a track.

4 Press the AMS control.
After "Complete!!" (i.e., the undoing of the last operation) appears, and the MD deck exits from the Edit menu.

6-2 Erasing Tracks (Erase Function)

Use the erase function to erase a single track or all tracks from a recorded disc.

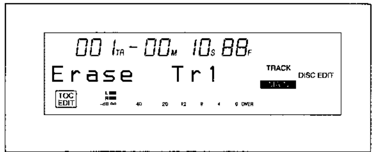
To erase a single track



1 Press the EDIT/NO button while the MD deck is stopped, playing back, or in playback pause.
The Edit menu appears.

2 Turn the AMS control until "002:Erase ?" appears.

3 Press the AMS control.
The display for erasing tracks appears and Rehearsal playback of the displayed track starts.



4 Turn the AMS control to select the track to be erased.

5 Press the AMS control.
"Complete!!" appears and the specified track is erased.

To erase a single track using the remote controller

You can use the remote controller or a keyboard to erase a single track during playback or playback pause.

1 Press the ERASE button.
Rehearsal playback of the displayed track starts.

2 Enter the number of the track to be erased with the numeric buttons.

3 Press the ENTER button.
"Complete!!" appears and the specified track is erased.

To erase all tracks on an MD

You can erase all tracks on an MD using the buttons on the front panel.

1 Press the EDIT/NO button while the MD deck is stopped, playing back, or in playback pause.
The Edit menu appears.

2 Turn the AMS control until "006:All Erase ?" appears.

3 Press the AMS control.
"All Erase ??" appears to ask whether you wish to cancel the procedure or not.
To cancel the erasure of all tracks on an MD, press the EDIT/NO or STOP button.

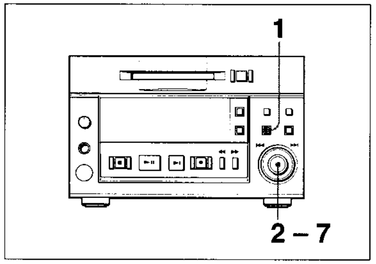
4 Press the AMS control.
"Complete!!" appears and all tracks on the MD are erased. The MD deck then exits from the Edit menu.

Chapter 6 Editing Functions

6-3 Dividing a Recorded Track (Divide Function)

To randomly access certain portions of a track, the divide function allows you to create separate tracks for each portion. You can also use the divide function to erase selected portions of a track, by first specifying the portion as a separate track, then erasing that track.

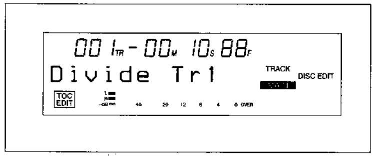
To divide a recorded track



1 Press the EDIT/NO button while the MD deck is stopped, playing back, or in playback pause.
The Edit menu appears.

2 Turn the AMS control until "005:Divide ?" appears.

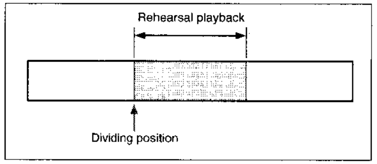
3 Press the AMS control.
The display changes for dividing track and the rehearsal playback of the currently displayed track starts.



4 Turn the AMS control to select the track to be divided.

5 Press the AMS control.
The rehearsal playback starts to locate the dividing position.

6 Turn the AMS control to adjust the dividing position.
The track will be divided at the top position of the rehearsal playback.
Pressing the ◀◀/▶▶ button allows you to change the unit for shifting the top position of the rehearsal playback. You can choose the unit from "F" (frame), "S" (second), or "M" (minute).



7 Press the AMS control.
"Complete!!" appears and the deck starts to play back the divided track for confirmation.

To divide a recorded track using the remote controller

While the track to be divided is played or in playback pause, you can use the remote controller or the keyboard for dividing operation.

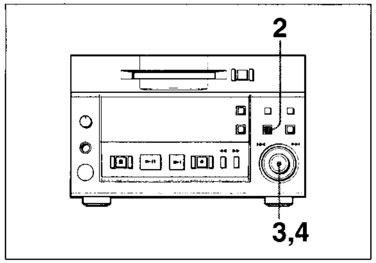
1 Press the DIVIDE button.
The rehearsal playback starts from where you pressed the button.

2 Adjust the dividing position using I◀◀ or ▶▶I key.
Pressing the ◀◀/▶▶ button allows you to change the unit for shifting the top position of the rehearsal playback. You can choose the unit from "F" (frame), "S" (second), or "M" (minute).

3 Press the ENTER button.
"Complete!!" appears and the deck starts to play back the divided track for confirmation.

To divide a recorded track during rehearsal playback

Locating the dividing position with the rehearsal playback before using the divide function allows you to skip the procedures for selecting the track to be divided and locating the dividing position.



1 Locate the dividing position with the rehearsal playback.

See "5-2-4 Rehearsal Playback" on page 5-3 for details.

2 Press the EDIT/NO button.

3 Turn the AMS control until "005:Divide ?" appears.

4 Press the AMS control.
"Complete!!" appears and the deck starts to play back the divided track for confirmation.

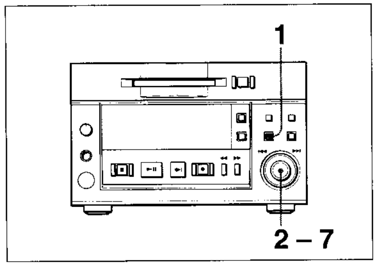
Notes

- If "Impossible" indication appears, you can not divide the track you specified. Repeating the division of tracks may produce a track which cannot be divided. This is the restriction on the MiniDisc system and is not out of order.
- The original title for the divided track goes with the former part of it. The latter part of the divided track may be newly named.

6-4 Combining Recorded Tracks (Combine Function)

Use the combine function to combine tracks on a recorded disc.
The two tracks to be combined needs not to be consecutive. And the latter track to be combined can be the track which comes before the former one in track number order.

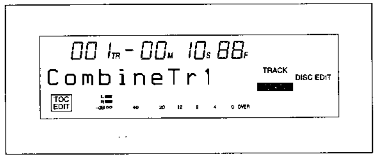
To combine tracks



1 Press the EDIT/NO button while the MD deck is stopped, playing back, or in playback pause.
The Edit menu appears.

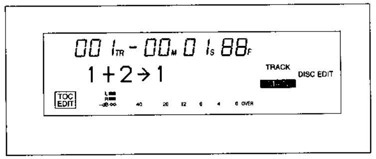
2 Turn the AMS control until "004:Combine ?" appears.

3 Press the AMS control.
The display changes for selecting the former track to be combined and the rehearsal playback of the currently displayed track starts.



4 Turn the AMS control to select the former track to be combined.

5 Press the AMS control.
The display changes for selecting the latter track to be combined and the rehearsal playback of the currently displayed track starts.



6 Turn the AMS control to select the latter track.

7 Press the AMS control.
"Complete!!" appears and the deck starts to play back the combined track for confirmation.

To combine tracks using the remote controller

When you play back the former track to be combined, you can use the remote controller or the keyboard to combine tracks.

1 Press the COMBINE button.

2 Specify the latter track using numeric button(s).

3 Press the ENTER button.
"Complete!!" appears and the deck starts to play back the combined track for confirmation.

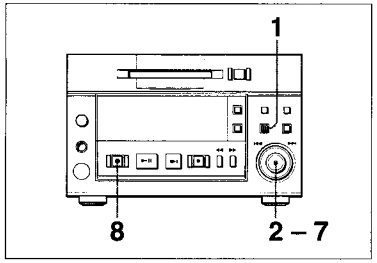
Notes

- If "Impossible" indication appears, you can not combine the two tracks you specified. This is the restriction on the MiniDisc system and is not out of order.
- The track title after combined will be the one for the former track to be combined.
- The track shorter than 8 seconds may not be combined.

6-5 Moving Recorded Tracks (Move Function)

Use the move function to change the order of specific tracks.

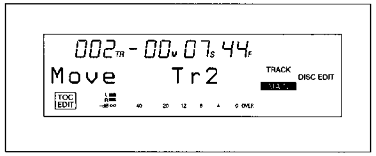
To move tracks



1 Press the EDIT/NO button while the MD deck is stopped, playing back, or in playback pause.
The Edit menu appears.

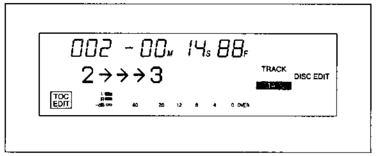
2 Turn the AMS control until "003:Move ?" appears.

3 Press the AMS control.
The display changes for selecting the track to be moved and the rehearsal playback of the currently displayed track starts.



4 Turn the AMS control to select the track to be moved.

5 Press the AMS control.
The display changes for selecting the track number where the track will be moved to.



6 Turn the AMS control to select the track number where the track will be moved to.
The track moves to the track number you selected.

7 Press the AMS control.
"Complete!!" appears and the deck starts to play back the moved track for confirmation.

8 After confirming, press the STOP button.

To move tracks using the remote controller

While the track you want to move is played, you can use the remote controller or the keyboard to move tracks.

1 Press the MOVE button.

2 Specify the track number where you want move the track to with the numeric buttons.

3 Press the ENTER button.
"Complete!!" appears and the deck starts to play back the moved track for confirmation.

4 After confirmation, press the STOP button.

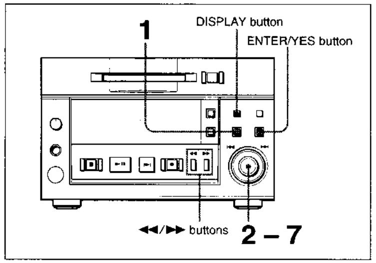
Chapter 6 Editing Functions

6-6 Editing Titles

Use the Edit menu to enter or edit disc or track titles. A single disc can store up to 1,792 characters of title data. You can enter a title, erase a title, erase all titles on the disc, or copy a title. Characters can be entered and titles can be erased directly using the supplied remote controller. You can also erase a title from the remote controller.

For details on operations with the remote controller, see "4-4 Adding Disc and Track Titles" on page 4-4.

To enter the title of a disc or track



1 Press the EDIT/NO button while the MD deck is stopped, playing, or in playback pause.
The Edit menu appears.

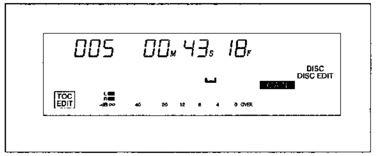
2 Turn the AMS control until "001:Name ?" indication appears.

3 Press the AMS control.
The display for selecting the title editing mode appears. There are four title editing modes.

"Nm In ?": Entering titles
"Nm Erase ?": Erasing titles
"Nm All Ers?": Erasing all titles on the disc
"Nm Copy ?": Copying titles

4 Turn the AMS control to select "Nm In ?" then press the AMS control.
The display for selecting the track to be entitled appears.

5 Turn the AMS control to select "Disc" to enter a disc name or the track number to enter a track title, then press the AMS control.
The display for entering a title appears.
When a track number is selected, the track starts to play repeatedly.



6 Turn the AMS control until the first character of the title appears, then press the control to enter the character.
Presse the AMS control to move, the cursor moves to next character position.

To change the character type

Press the DISPLAY button to choose uppercase, lowercase, or number.

To change an entered character

Press the ◀◀ or ▶▶ button to until the character you want to change begins flashing, then turn the AMS control to select a new character.

To erase a character

Press the ◀◀ or ▶▶ button until the character you want to erase begins to flash, then press the EDIT/NO button. Pressing the button repeatedly erases successive characters.

To enter a space

Press the ◀◀ or ▶▶ button until the character that you want to enter a space before begins flashing, then press the AMS control.

7 Repeat step 6 until you enter the entire title then press the ENTER/YES button.
The title you entered is recorded on the disc.
"Complete!!" appears and then the title scrolls.

To erase a title

1 Press the EDIT/NO button while the MD deck is stopped, playing, or in playback pause.
The Edit menu appears.

2 Turn the AMS control until "001:Name ?" appears, then press the AMS control.

3 Turn the AMS control to select "Nm Erase ?", then press the AMS control.
The display for selecting a title to be erased appears. If you select a track number, the track will begin playing back repeatedly.

4 Turn the AMS control to select "Disc" to erase a disc title or a track number to erase a track title, then press the AMS control.
The title you selected is erased. "Complete!!" appears, followed by "No Name."

To erase all titles on a disc

1 Press the EDIT/NO button while the MD deck is stopped, playing, or in playback pause.
The Edit menu appears.

2 Turn the AMS control until "001:Name ?" appears, then press the AMS control.

3 Turn the AMS control to select "Nm All Ers?", then press the AMS control.
"Nm ALL Ers??" appears to ask whether you want to erase all titles on the disc.

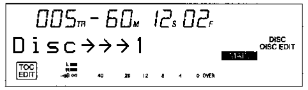
4 Press the AMS control again.
All titles on the disc are erased. "Complete!!" appears, followed by "No Name."

To copy a title

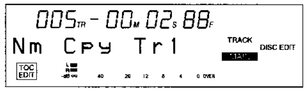
1 Press the EDIT/NO button while the MD deck is stopped, playing, or in playback pause.
The Edit menu appears.

2 Turn the AMS control until "001:Name ?" appears, then press the AMS control.

3 Turn the AMS control to select "Nm Copy ?", then press the AMS control.
The display for selecting the title to be copied appears.



4 Turn the AMS control to select "Disc" to copy the disc title, or the track whose title you want to copy, then press the AMS control.
The display for specifying the location to be copied to appears.



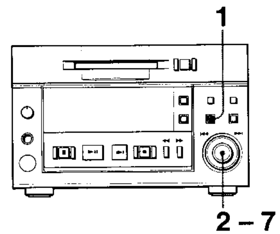
If you select the track with no name, the "No Name" indication appears.

5 Turn the AMS control to select "Disc" for disc title or to specify the track number to copy to a track, then press the AMS control.
The selected title is copied and "Complete!!" appears.

6-7 Marking the Cue Point

You can mark the cue point anywhere on the track to put out the tally signal from the REMOTE connector (D-sub, 25-pin) during playback.
You can mark up to 255 cue points per disc.

To mark a cue point

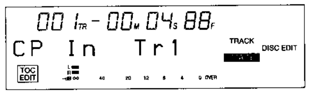


1 Press the EDIT/NO button while the MD deck is stopped, playing back, or in playback pause.
The Edit menu appears.

2 Turn the AMS control until "008:Cue Point ?" appears.

3 Press the AMS control to display "CP In ?."

4 Press the AMS control.
The display changes for selecting the track to be marked with a cue point and the rehearsal playback of the currently displayed track starts.



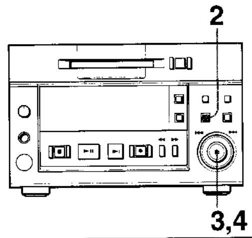
5 Turn the AMS control to select the track to be marked with a cue point, then press the control.
The rehearsal playback starts for locating the marking point.

6 Turn the AMS control to locate the cue point to be marked.
The beginning of rehearsal playback will be the cue point to be marked.
Pressing the ◀◀/▶▶ button allows you to change the unit for shifting the top position of the rehearsal playback. You can choose the unit from "F" (frame), "S" (second), or "M" (minute).

7 Press the AMS control.
"Complete!!" appears and the deck starts to play back for confirming the cue point.

To mark a cue point during rehearsal playback

Locating the marking position for the cue point with the rehearsal playback in advance allows you to skip the procedures for locating the marking position.



1 Locate the marking position with the rehearsal playback.

See "5-2-4 Rehearsal Playback" on page 5-3 for details.

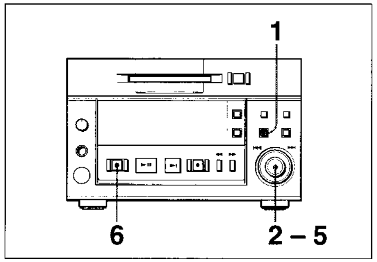
2 Press the EDIT/NO button.

3 Turn the AMS control to display "008-01:CP In ?."

4 Press the AMS control.
"Complete!!" appears and the deck starts to play back for confirming the cue point.

While the tally signal is output, "CUE" will light up on the display window.

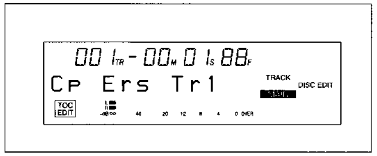
To erase a cue point



1 Press the EDIT/NO button while the MD deck is stopped, playing back, or in playback pause.
The Edit menu appears.

2 Turn the AMS control until "008:Cue Point ?" appears.

3 Press the AMS control and turn it until "CP Erase ?" appears.
The display changes for selecting the track whose cue point you want to erase and the rehearsal playback of the currently displayed track starts.

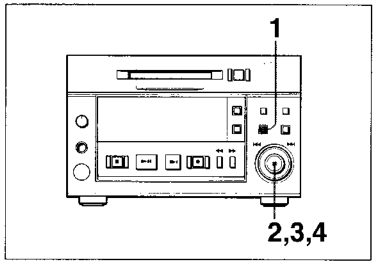


4 Turn the AMS control to select the track whose cue point you want to erase and then press the AMS control.
The cue point number in the track you selected appears and the rehearsal playback starts from that cue point.

5 Turn the AMS control to select the cue point number and then press the AMS control.
"Complete!!" appears and the deck starts to play back for confirmation.

6 After confirmation, press the STOP button.

To erase all cue points



1 Press the EDIT/NO button while the MD deck is stopped, playing back, or in playback pause.
The Edit menu appears.

2 Turn the AMS control until "008:Cue Point ?" appears.

3 Press the AMS control and turn it until "CP All Ers ?" appears. Then press the AMS control.
"CP ALL Ers??" appears to ask whether you want erase all cue points or not.

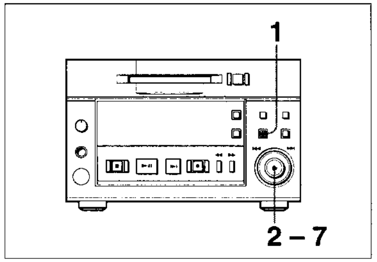
4 Press the AMS control.
"Complete!!" appears.

6-8 Trimming

6-8-1 Head Trimming

The head trimming function allows you to change the beginning of a track temporarily without erasing the actual data on the disc. You can specify the trimming point for the beginning of a track by detecting the rise in the audio signal according to the threshold level set by the Autocue function in the Setup menu.
Using this function in conjunction with the Multi-access function allows you to position the start of playback more accurately.

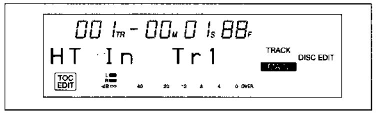
To trim the beginning of a track



1 Press the EDIT/NO button.
The Edit menu appears.

2 Turn the AMS control until "009:Head Trim ?" appears.

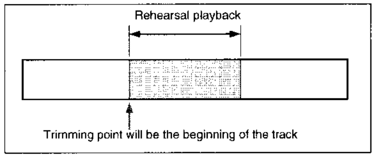
3 Press the AMS control to display "HT In ?", then press the control.
The display for selecting the track to be trimmed appears.



4 Turn the AMS control to select the track to be trimmed.
When you want to trim all the tracks on the MD, select the "HT In All" indication instead of a track number.

5 Press the AMS control.
Rehearsal playback starts from the rise in the audio signal detected according to the Autocue threshold level set in the Setup menu.

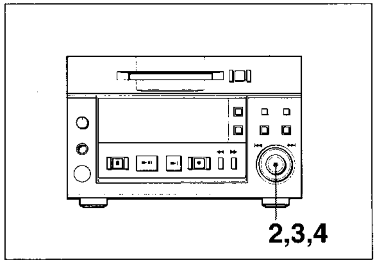
6 Turn the AMS control to specify the trimming point.
The start of Rehearsal playback becomes the trimming point. Pressing the ◄◄/►► button allows you to select "F" (frame), "S" (second), or "M" (minute) as the unit for adjusting the start of Rehearsal Play.



7 Press the AMS control.
"Complete!!" appears and playback starts for confirming the results of the operation.

To trim a track during Rehearsal playback

Locating the trimming position during Rehearsal playback eliminates the need to use the Edit menu to do the same thing.



1 Locate the trimming position through Rehearsal playback.

For details, see "5-2-4 Rehearsal Playback" on page 5-3.

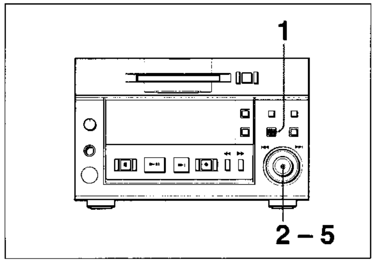
When the music set with head trimming is selected, "END" will light up on the display window.

2 Press the EDIT/NO button.

3 Turn the AMS control until "009-01:HT In ?" appears.

4 Press the AMS control.
"Complete!!" appears and playback starts for confirming the results of the operation.

To erase the trimming specification at the beginning of a track



1 Press the EDIT/NO button while the MD deck is stopped, playing, or in playback pause.
The Edit menu appears.

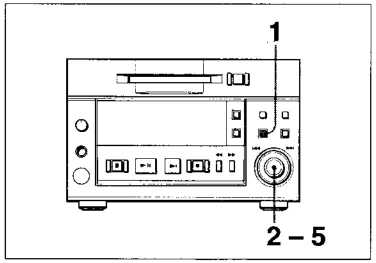
2 Turn the AMS control until "009:Head Trim ?" appears.

3 Press the AMS control, then turn the control to display "HT Erase ?."

4 Press the AMS control.
The display for selecting the track whose specification is to be erased appears. The specified track begins playing repeatedly.

5 Turn the AMS control to select the track, then press the control.
"Complete!!" appears and playback starts for confirming the results of the operation.

To erase all head-trimming specifications on a disc



1 Press the EDIT/NO button while the MD deck is stopped, playing, or in playback pause.
The Edit menu appears.

2 Turn the AMS control until "009:Head Trim ?" appears.

3 Press the AMS control, then turn the control to display "HT All Ers ?."

4 Press the AMS control.
"HT ALL Ers??" appears to ask whether you want to erase all head-trimming specifications or not.

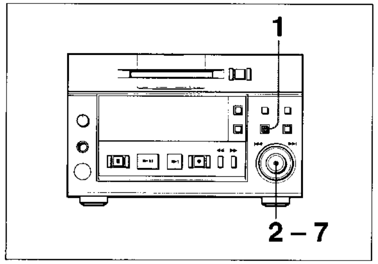
5 Press the AMS control.
"Complete!!" appears.

Chapter 6 Editing Functions

6-8-2 End Trimming

By entering a trimming specification at the end of a track, you can eliminate the ending position without actually erasing sound data on the disc.

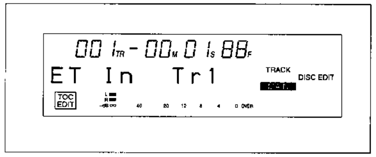
To trim the end of a track



1 Press the EDIT/NO button.
The Edit menu appears.

2 Turn the AMS control until "010:End Trim ?" appears.

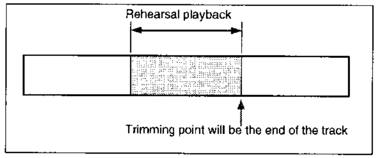
3 Press the AMS control to display "ET In ?", then press the control again.
The display for selecting the track to be trimmed appears.



4 Turn the AMS control to select the track to be trimmed.

5 Press the AMS control.
Trimming point will be set at the end of Rehearsal playback.

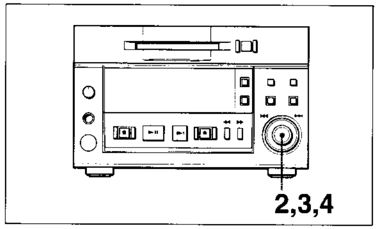
6 Turn the AMS control to specify the amount to be trimmed.
Pressing the ◄◄/►► button allows you to select "F" (frame), "S" (second)", or "M" (minute) as the unit for adjusting the end of Rehearsal playback.



7 Press the AMS control.
"Complete!!" appears and playback starts for confirming the results of the operation.

To trim the end of a track during Rehearsal playback

Locating the trimming position during Rehearsal playback eliminates the read to use the Edit menu to do the same thing.



1 Locate the trimming position through Rehearsal playback.

For details, see "5-2-4 Rehearsal Playback" on page 5-3.

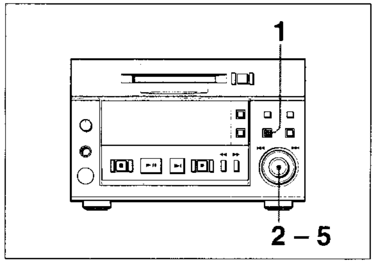
2 Press the EDIT/NO button.

3 Turn the AMS control until "010-01:ET In ?" appears.

4 Press the AMS control.
"Complete!!" appears and playback starts for confirming the results of the operation.

When the music set with end trimming is selected, "END" will light up on the display window.

To erase a trimming specification at the end of a track

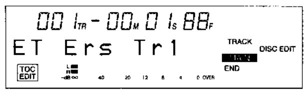


1 Press the EDIT/NO button while the MD deck is stopped, playing, or in playback pause.
The Edit menu appears.

2 Turn the AMS control until "010:End Trim ?" appears.

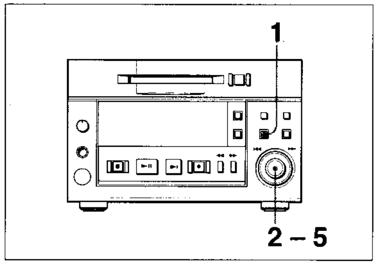
3 Press the AMS control, then turn the control to display "ET Erase ?."

4 Press the AMS control.
The display for selecting the track whose trimming specification is to be erased appears. The specified track begins playing repeatedly.



5 Turn the AMS control to select the track, then press the control.
"Complete!!" appears and playback starts for confirming the results of the operation.

To erase all end-trimming specifications on a disc



1 Press the EDIT/NO button while the MD deck is stopped, playing, or in playback pause.
The Edit menu appears.

2 Turn the AMS control until "010:End Trim ?" appears.

3 Press the AMS control, then turn the control to display "ET All Ers ?."

4 Press the AMS control.
"ET ALL Ers ??" appears to ask whether you want to erase all end-trimming position settings or not.

5 Press the AMS control.
"Complete!!" appears.

7-1 The Overview of the Setup Menu

Setting items of the setup menu

The Setup menu of the MDS-B5 includes the setting items shown below. Each menu item has the item number for your ease of setting.

Item number	Menu item	Contents	Setting values	Page
F01	Input source	Input signal selection	Analog In, DIN AES/EBU, DIN Coaxial	4-1
F02	Play mode	Playback mode selection	Continue, Shuffle, Program, Multi Access	5-8
F03	Repeat	Repeat play setting	Repeat Off, Repeat On	5-7
F04	Rec mode	Recording mode setting	Stereo Rec, Monoral Rec	4-2
F05	Dup mode	The MD deck setting for direct ATRAC data copy function	Dup Off, Dup Main, Dup Sub, Dup End	3-3
F06	Levelsync	LevelSync function setting	LevelSyncOff, LevelSyncOn	7-2
F07	Varispeed	Variable speed playback setting	VariSpeedOff, VariSpeedOn	5-13
F08	NextPlay	The next track select function setting	NextPlayOff, NextPlayOn	5-5
F09	Edit mode	Edit mode selection	Disc Edit, Ram Edit	6-1
F10	Timer mode	Timer mode setting	Timer off, Timer Play, Timer Rec	7-3
F11	Resume mode	Resume mode setting	Resume off, Resume On, Resume Next	7-4
F12	Keyboard type	Keyboard type setting	KB JPN 106, KB ENG 101	3-4
F13	Baud rate	Baud rate setting (RS-232C)	9600 baud, 4800 baud, 2400 baud, 1200 baud	7-5
F14	Parity bit	Parity bit setting (RS-232C)	Parity Off, Parity Even, Parity Odd	7-5
F15	Stop Bit	Stop bit length setting (RS-232C)	Stop Bit 1, Stop Bit 2	7-5
F16	Levelsync threshold	Threshold level for LevelSync	LS (T) −50 dB (adjustable range from −72 dB to 0 dB)	7-2
F17	Levelsync width	Detecting time for LevelSync	LS (W) 1.5s (adjustable range from 0.0s to 9.5s, 1 step = 0.5s)	7-2
F18	Levelsync offset	Margin setting for LevelSync	LS (O) 0s00f (adjustable range from −9s85f to +9s85f, 1 step = 1f)	7-2
F19	Autocue threshold	Detect threshold level for autocue function	AC (T) −50 dB (adjustable range from −72 dB to 0 dB)	7-6
F20	Autocue offset	Margin setting for autocue function	AC (O) 0s00f (adjustable range from −9s85f to +9s85f, 1 step = 1f)	7-6
F21	Rehearsal length	Rehearsal playback time setting	RH (L) 2s00f (adjustable range from 0s00f to 9s85f, 1 step = 1f)	7-7
F22	Rehearsal interval	Interval for rehearsal playback	RH (I) 1.0s (adjustable range from 0.0s to 8.0s, 1 step = 0.5s)	7-7
F23	Disc EOM	Disc end message function	D.EOM 5sec (adjustable range from 1 sec to 35 sec, 1 step = 1 sec)	7-8
F24	Track EOM	Track end message function	T.EOM 5sec (adjustable range from 1 sec to 35 sec, 1 step = 1 sec)	7-8
F25	Hours meter	Digital hours meter	S0000 L0000	7-9
F26	Kill Local	Disabling the buttons on the deck during remote controlling	Kill Almost, Kill All	7-10

* The left most value of each item is the factory setting. Pressing the EDIT/NO button during using the Setup menu returns the value to the factory setting.

7-2 LevelSync Setting (Track Marking Function)

LevelSync function adds track numbers automatically at specified points where the rise in the audio signal is detected during recording.
You can set the following items as well as turning on and off of LevelSync function using the setup menu for fitting your needs.

Turning on and off of the LevelSync function (F06: Levelsync)

The factory setting is off.

Threshold level for the LevelSync function (F16: Levelsync threshold)

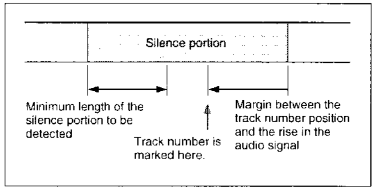
You can adjust the threshold level for detecting as a silence portion of audio signal. -50 dB (factory setting) is the threshold level used to detect the rise in audio signal from a silence portion. You can adjust this level according to the input signal ranging from –72 dB to 0 dB.

The minimum length of the silence portion to be detected (F17: Levelsync width)

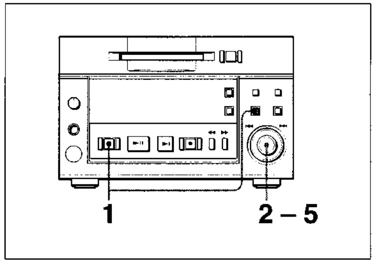
You can set the minimum length of the silence portion to be detected. If the silence portion lasts longer than 1.5 second, this portion is regarded as a track, and the track number will be marked when the following rise in the audio signal comes. You can adjust the minimum length to detect ranging from 0.0 second to 9.5 seconds with reference to the input signals.

LevelSync offset function (F18: Levelsync offset)

The LevelSync offset function allows you to adjust the margin between the position where the track number is marked and the rise in the audio signal. You can tune finely the starting point of playback using this function.
You can shift up to 9 seconds 85 frames before or after the rise in the audio signal regarded as 0 second 0 frame (factory setting). However, you cannot mark the track number at the position before the silence portion starts.



To set the items for the LevelSync function



1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears.

2 Turn the AMS control until the item you want to set is displayed.

F06: Levelsync
F16: Levelsync threshold
F17: Levelsync width
F18: Levelsync offset

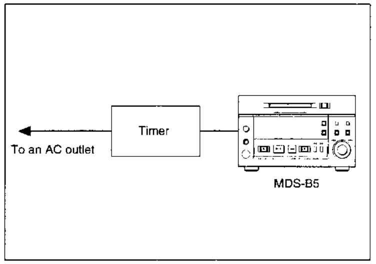
3 Press the AMS control.
The indication flashes to show that you can change the setting.

4 Turn the AMS control to select the setting values.

5 Press the AMS control to affect the selection and exit from the Setup menu.

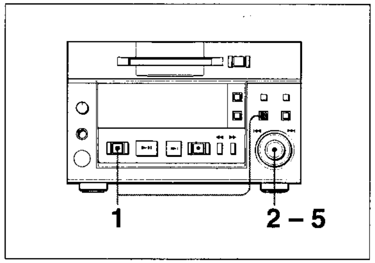
7-3 Setting Up for Timer-Activated Function

Use the Setup menu to use the timer-activated recording or playback function connecting the MDS-B5 to the timer.



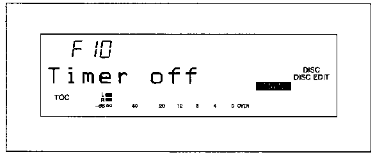
Connecting a timer

To set the timer-activated function



1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears.

2 Turn the AMS control until the menu item F10 ("Timer off", "Timer Play" or "Timer Rec") appears.



3 Press the AMS control.
The indication flashes to show that you can change the setting.

4 Turn the AMS control to select the timer-activated mode from the values below.

Timer off: Timer-activated function is disabled.
Timer Play: Timer-activated playback is set.
Timer Rec: Timer-activated recording is set.

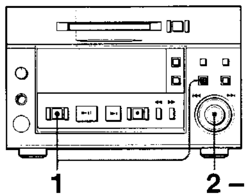
5 Press the AMS control to affect the selection and exit from the Setup menu.

7-4 Setting the Playback Resume Mode

You can set how to resume playback when you press the PLAY/PAUSE button after the deck was stopped with the STOP button being pressed.

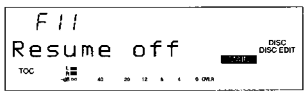
Note
When you use the shuffle play or Multi-Access function, the playback resume mode setting will be ignored.

To set the playback resume mode



1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears.

2 Turn the AMS control until the menu item F11 ("Resume off", "Resume Play" or "Resume Next") appears.



3 Press the AMS control.
The indication flashes to show that you can change the setting.

4 Turn the AMS control to select the playback resume mode from the values below.

Resume off: Turns the playback resume mode off.
Resume Play: Pressing the PLAY/PAUSE button starts playback from where you stopped or paused playback.
Resume Next: Pressing the PLAY/PAUSE button starts playback from the beginning of the next track which follows the one you stopped playback.

5 Press the AMS control to affect the selection and exit from the Setup menu.

7-5 Setting the RS-232C Interface

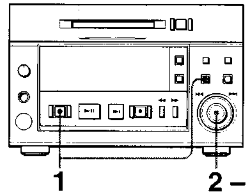
External equipment connected to the RS-232C connector at the rear of the MDS-B5 can be used to control the MDS-B5. Use the Setup menu to set the baud rate, parity, and stop bit length of RS-232C interface before using this interface.
Values for each setting item are as follows.

Baud rate setting (F13: Baud rate)
9600 baud: baud rate 9600
4800 baud: baud rate 4800
2400 baud: baud rate 2400
1200 baud: baud rate 1200

Parity bit setting (F14: Parity bit)
Parity Off: Use no parity
Parity Even: Use even parity
Parity Odd: Use odd parity

Stop bit length setting (F15: Stop Bit)
Stop Bit 1: Selects a stop bit length 1
Stop Bit 2: Selects a stop bit length 2

To set up for RS-232C interface



1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears in the display window.

2 Turn the AMS control until the menu item you want to set up appears.

F13: Baud rate
F14: Parity bit
F15: Stop Bit

3 Press the AMS control.
The indication flashes to show that you can change the setting.

4 Turn the AMS control to select the value.

5 Press the AMS button to affect the selection and exit from the Setup menu.

Note: RS232C can not be used if high-speed dubbing is not set to "DUP OFF".

7-6 Setting the Auto Cue Function

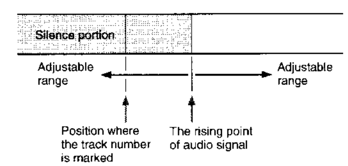
Turning the AUTO CUE function on by pressing the A.MODE button enables the MDS-B5 to locate the beginning of a track by detecting the rise in the audio signal.
You can adjust the detect level for the rise in the audio signal to locate the beginning of a track more precisely in accordance with input signal.
You can also shift the beginning of a track from the rise in the audio signal.

Threshold level for AUTO CUE function (F19: Autocue threshold)

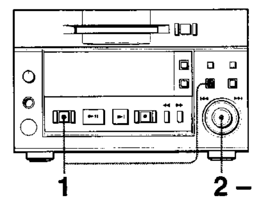
You can adjust the threshold level for detecting as a silence portion of audio signal. −50 dB (factory setting) is the threshold level used to detect the rise in audio signal from a silence portion. You can adjust this level according to the input signal ranging from −72 dB to 0 dB.

AUTO CUE offset function (F20: Autocue offset)

The AUTO CUE offset function allows you to adjust the margin between the position where the track number is marked and the rise in the audio signal.
You can tune finely the starting point of playback using this function.
You can shift up to 9 seconds 85 frames before or after the rise in the audio signal regarded as 0 second 0 frame (factory setting).



Setting Up the AUTO CUE function



1. Press the EDIT/NO button while holding down the STOP button.
   The Setup menu appears in the display window.
2. Turn the AMS control until the menu item you want to set up appears.

   F19: Autocue threshold
   F20: Autocue offset
3. Press the AMS control.
   The indication flashes to show that you can change the setting.
4. Turn the AMS control to select the value.
5. Press the AMS button to affect the selection and exit from the Setup menu.

7-7 Setting the Rehearsal Playback Function

By pressing the REHEARSAL button, the MD deck starts the rehearsal playback from the position you pressed the REHEARSAL button for the specified time.
You can change the time length and interval for rehearsal playback using the setup menu.

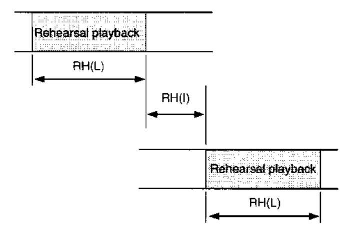
See "5-2-4 Rehearsal Playback" on page 5-3 for details.

Rehearsal playback time setting (F21: Rehearsal length)

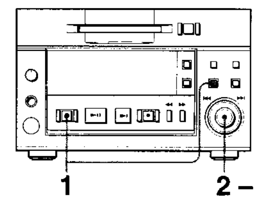
You can set the rehearsal playback time in frame ranging from 0 second 00 frame to 9 seconds 85 frames.
The factory setting is 2 seconds 00 frame.

Rehearsal playback interval setting (F22: Rehearsal interval)

You can set the interval for rehearsal playback in 0.5 second ranging from 0.0 second to 8.0 seconds.
The factory setting is 1.0 second.



Setting the rehearsal playback function



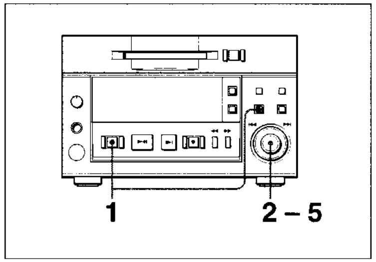
1. Press the EDIT/NO button while holding down the STOP button.
   The Setup menu appear.
2. Turn the AMS control until the menu item you want to set up appears.

   F21: "RH (L) 2s00f" (Rehearsal playback time setting)
   F20: "RH (I) 1.0s" (Interval for rehearsal playback)
3. Press the AMS control.
   The indication flashes to show that you can change the setting.
4. Turn the AMS control to set the value.
5. Press the AMS control to affect the setting and exit from the Setup menu.

7-8 Setting the EOM Function

The EOM function enables the MD deck to put out the tally signal which tells the current track or the disc is getting closer to its end.
Use the Setup menu to set when the tally signal is put out before the end of the current track or the disc.
You can set the offset time before the end in 1 second ranging from 1 second to 95 seconds for the Disc EOM function and ranging from 1 second to 35 seconds for the Track EOM function.

To set the EOM function



1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears.

2 Turn the AMS control until the menu item you want to set up appears.

F23: "D.EOM 5sec" (Disc EOM function setting)
F24: "T.EOM 5sec" (Track EOM function setting)

3 Press the AMS control.
The indication flashes to show that you can change the setting.

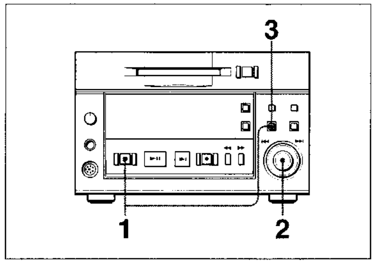
4 Turn the AMS control to set the value.

5 Press the AMS control to affect the setting and exit from the Setup menu.

7-9 Reading the Hours Meter

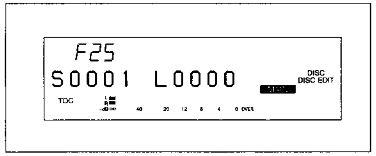
This function allows you to display the accumulated operating time of the laser diode (during recording operations) and of the spindle motor. Use this information as the basis for replacing the BU block.

To display the digital hours meter



1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears.

2 Turn the AMS control until the menu item F25.



S: Accumulated spindle motor operating time
L: Accumulated laser diode operating time

3 After checking the meter, press the EDIT/NO button to exit the Setup menu.

Note

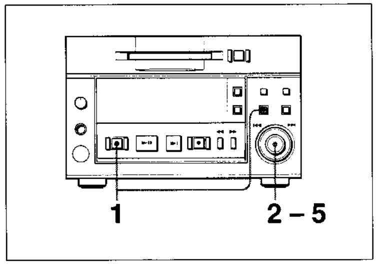
When the BU block is replaced, a new EEP-ROM is installed and the hours meter is zeroed. Since this resets the other menu functions as well, you must make the applicable settings again.

7-10 Disabling the Buttons While Controlling Remotely

When you control the MDS-B5 with the remote controller or the keyboard or use the deck as a sub or end deck during direct ATRAC data copying, you can disable the buttons on the front panel of the MDS-B5 to avoid unintentional touch of the operation buttons (Kill Local function). You can choose from two setting modes ("Kill Almost" and "Kill All").

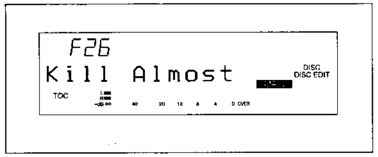
For the connection when you use the direct ATRAC data copy function, see "3-2-3 Connection for Direct ATRAC Data Copying" on page 3-3.

Disabling the buttons on the front panel



1 Press the EDIT/NO button while holding down the STOP button.
The Setup menu appears.

2 Turn the AMS control until the menu item F26 ("Kill Almost" or "Kill All") appears.



3 Press the AMS control.
The indication flashes to show that you can change the setting.

4 Turn the AMS control to select the mode from the values below.

Kill Almost: Only the STOP, EJECT, and DISPLAY buttons are in effect.
Kill All: All the buttons on the front panel are disabled.

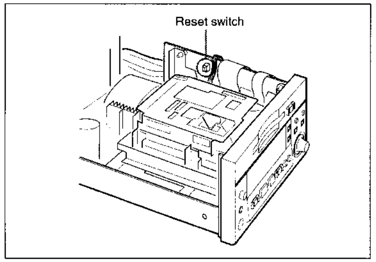
5 Press the AMS control to affect the setting and exit from the Setup menu.

8-1 Cleaning and Reset Switch

Use a soft cloth slightly moistened with a mild detergent solution to clean the cabinet and panel surface. Do not use solvents that may damage the surface such as paint thinner, benzine, or alcohol.

About the reset switch

Removing the screws with a Phillips screwdriver from both side of the MD deck (two screws on each side) and the rear panel (one screw) allows you to open the top panel of the MD deck. You may find the reset switch on the internal board. Pressing the reset switch allows you to reset the microcomputer.



Note

Do not press the reset switch in usual operations. Use the reset switch only when the microcomputer hangs to cause the malfunction of the deck, when the any button operations are not accepted, and the like.

8-2 Display Messages

The following tables explain in the various messages that appear in the display window.

Messages during specifying tracks for program playback and multi-access function

Message	Meaning
Program Full!	During specifying tracks for program playback, an attempt was made to specify more than 25 tracks. During specifying tracks for multi-access function, an attempt was made to specify more than 10 tracks.

Messages during recording

Message	Meaning
Cannot Copy	An attempt was made to record from copy-protected source by SCMS (Serial Copy Management System).
DIN Unlock	Connections on the digital input connectors are inappropriate.
Disc Full!!	The MD is full.
Premastered	An attempt was made to record on the disc only for playback.
Protected	The inserted MD is record-protected.

Messages during editing the MD

Message	Meaning
Cannot Edit	An attempt was made under the condition* you cannot edit the MD.
Cannot Undo	The last operation is unable to cancel.
CP Full !!	An attempt was made to specify more than 255 cue points.
Impossible	The edit operation was invalid because of restriction on the system.
Name Full !!	An attempt was made to enter more characters than the restriction.
No Cue Point	No cue point was specified for the selected track.
No Head Trim	No head trim setting was specified for the selected track.
No End Trim	No end trim setting was specified for the selected track.
Premastered	During the disc edit mode, an attempt was made to edit the disc only for playback.
Protected	The inserted MD is record-protected.

* The conditions under which you cannot edit the MD are as follows:
- When using the program play, shufle play, or Multi-Access function
- When erasing, dividing, combining, or moving tracks using the remote controller while the MD deck is stopped.

Other messages

Message	Meaning
No Name	No title is specified for the track or the disc.
No Disc	There is no disc in the MD deck.
No Track	The inserted MD has a disc title but no tracks.
Disc Error	The MD is scratched or missing a TOC.
Blank Disc	A new (blank) or erased MD has been inserted.
End	The current track is the last track on the MD.

Menu Item List

The Edit menu

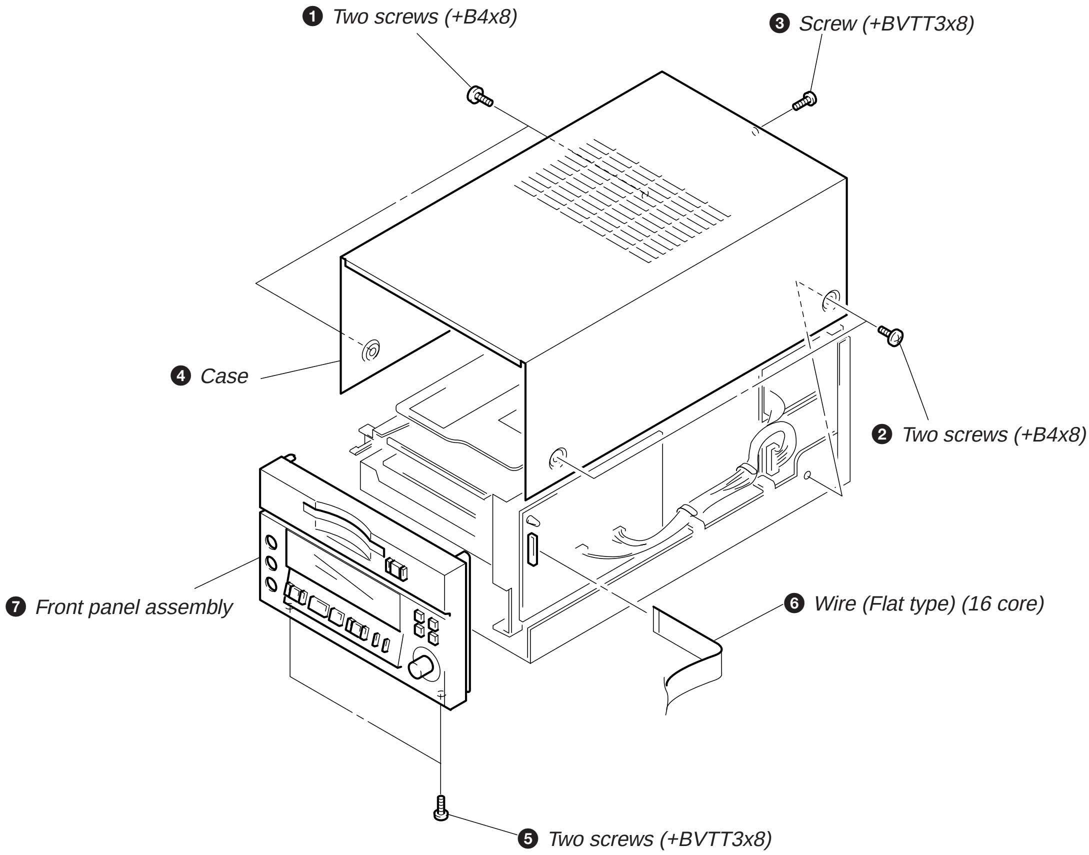
Press the EDIT/NO button to enter the Edit menu.

Number	Menu item	Setting	Page
001	Name ? Nm In ? Nm Erase ? Nm All Ers? Nm Copy ?	Editing a title Entering a title Erasing a title Erasing all titles on the disc Copying a title	6-8
002	Erase ?	Erasing a track	6-3
003	Move ?	Moving a track	6-7
004	Combine ?	Combine tracks	6-6
005	Divide ?	Dividing a track	6-4
006	All Erase ?	Erasing all tracks on the disc	6-3
007	Undo ?	Canceling the last operation	6-2
008	Cue Point ? CP In ? CP Erase ? CP All Ers ?	Editing the cue points Specifying a cue point Erasing a cue point Erasing all cue points on the disc	6-10
009	Head Trim ? HT In ? HT Erase ? HT All Ers ?	Trimming the beginning of a track Specifying the trimming point for the head trim function Erasing a head trimming point Erasing all the head trimming points on the disc	6-12
010	End Trim ? ET In ? ET Erase ? ET All Ers ?	Trimming the end of a track Specifying the trimming point for the end trim function Erasing an end trimming point Erasing all the end trimming points on the disc	6-14
011	Program ?	Specifying the tracks for Program Play function	5-8
012	M-Access ?	Specifying the tracks for multi-access playback function	5-11
013	Speed ?	Setting the speed during the variable speed playback	5-13
014	Err Check ?	Checking an error for recorded data	4-5
015	Duplicate ?	Operating the direct ATRAC copy function	4-5

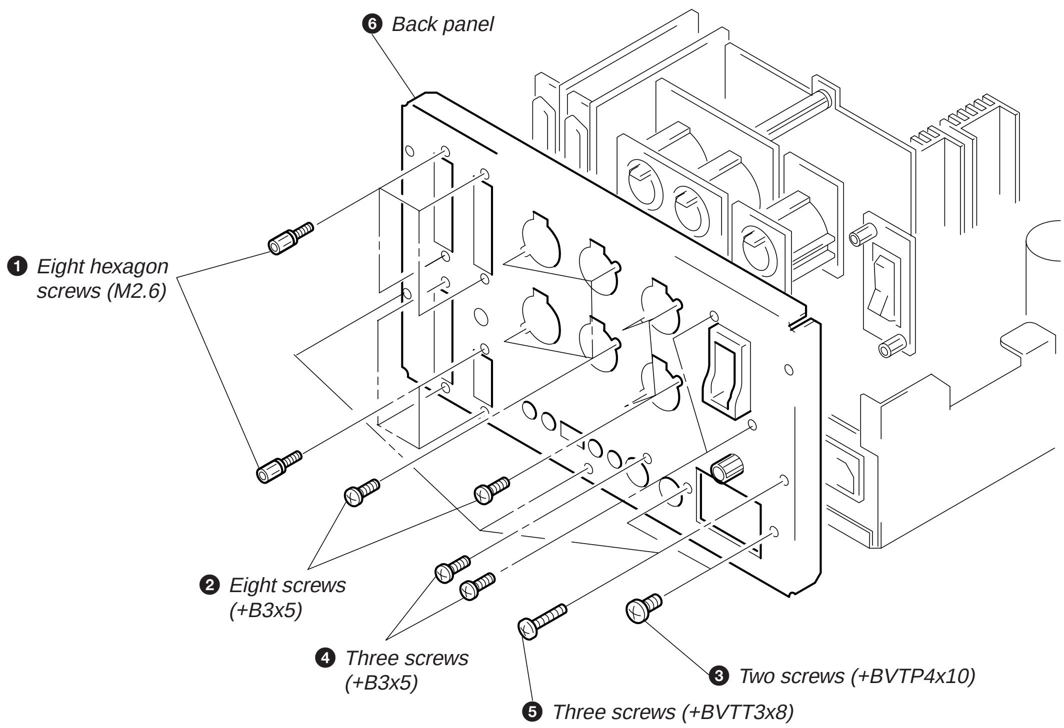
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

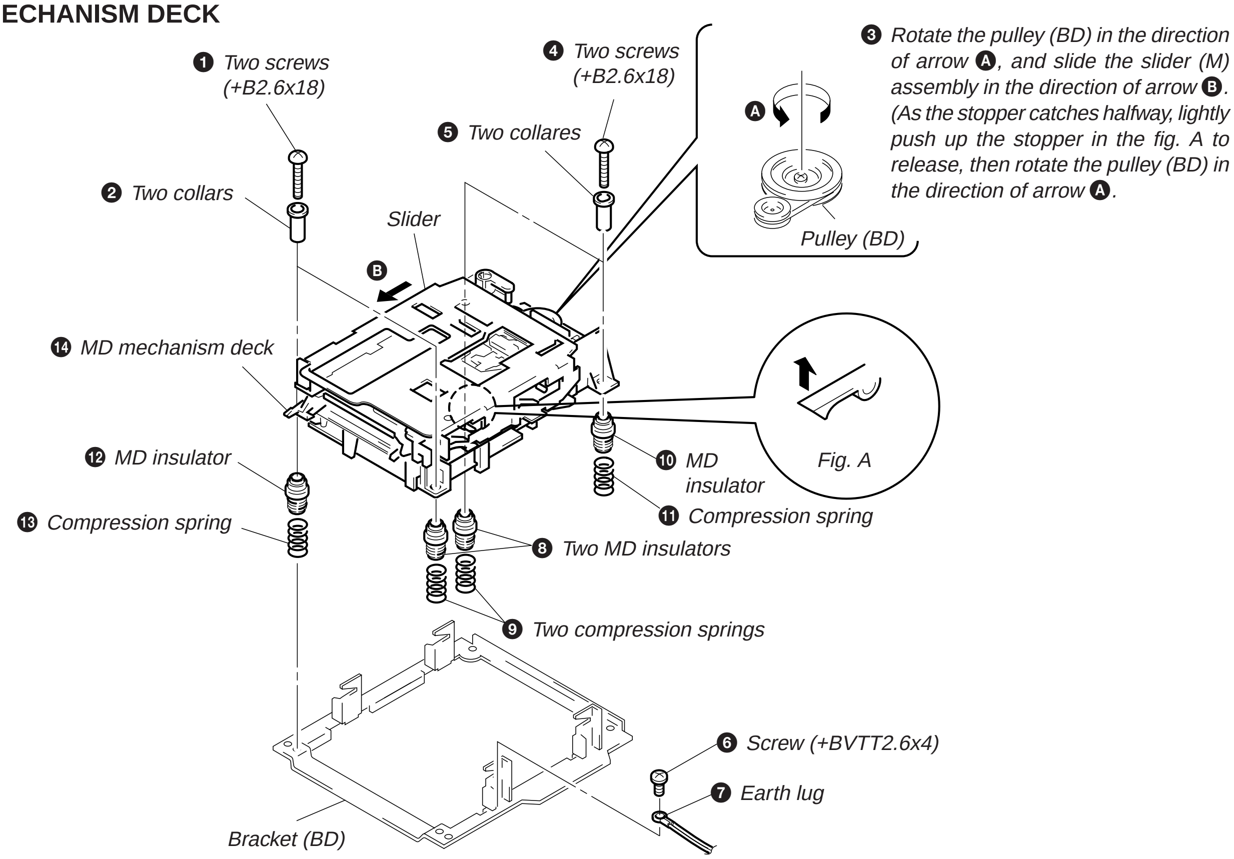
2-1. CASE AND FRONT PANEL ASSEMBLY



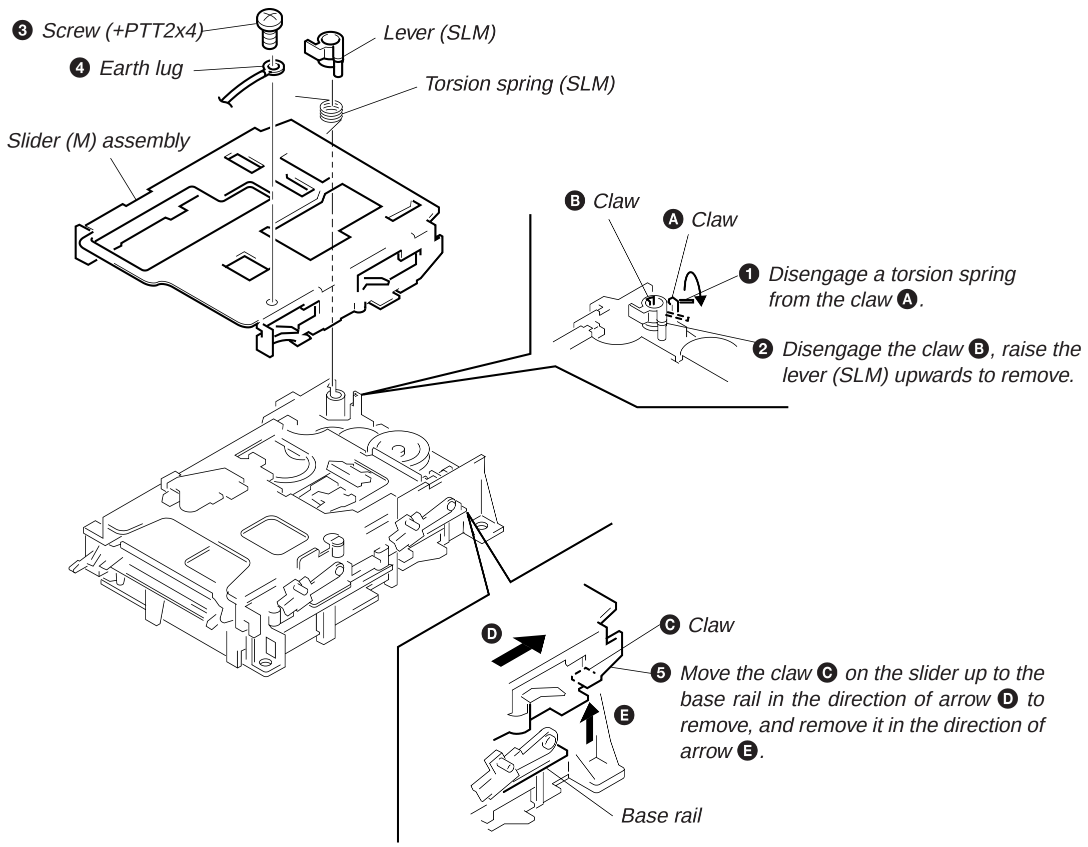
2-2. BACK PANEL



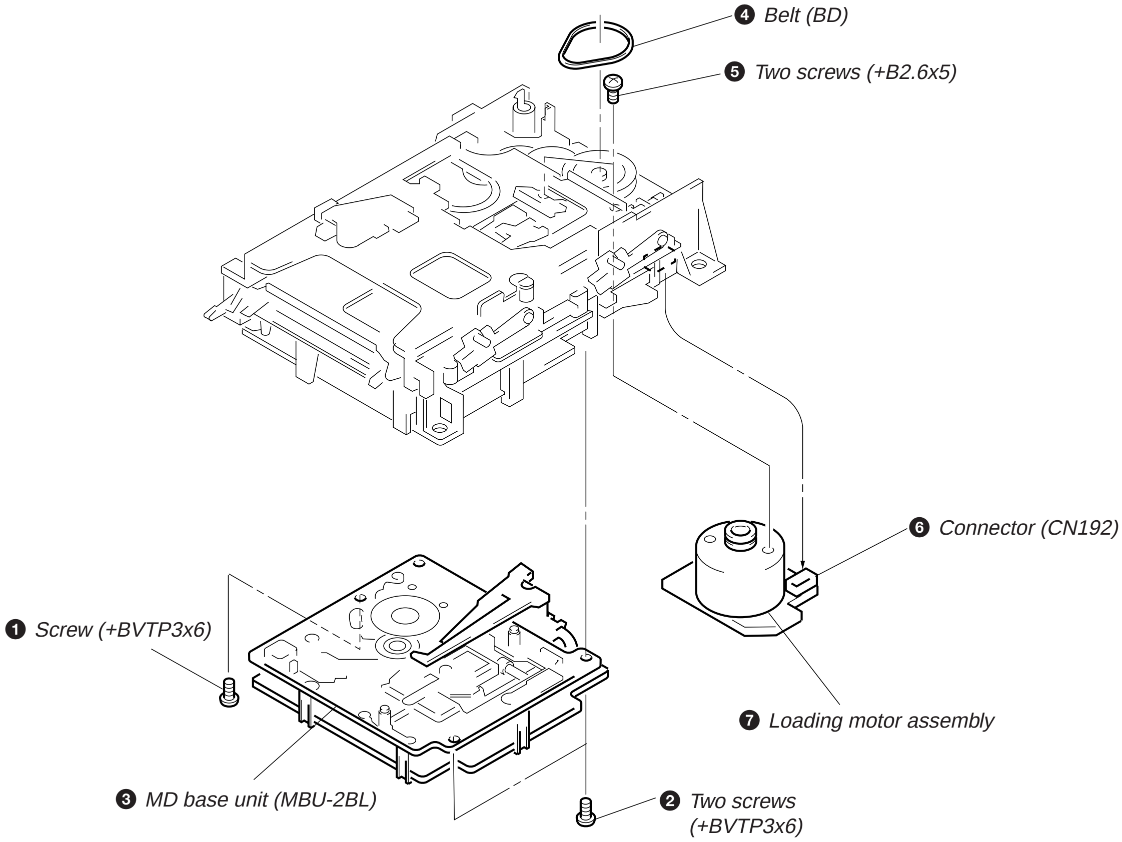
2-3. MECHANISM DECK



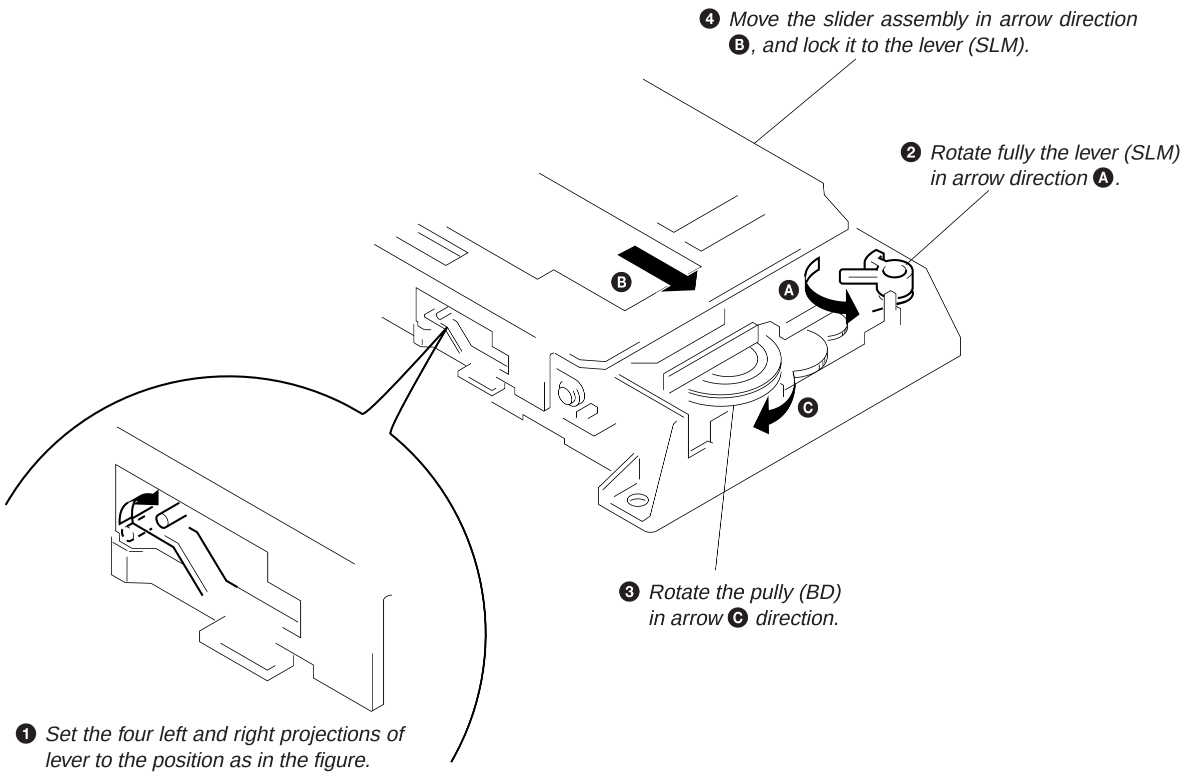
2-4. SLIDER



2-5. BASE UNIT (MBU-2BL), LOADING MOTOR ASSEMBLY



2-6. SLIDER ASSEMBLY MOUNTING



SECTION 3
TEST MODE

3-1. Setting the Test Mode

While pressing the AMS knob, turn POWER switch on, and release the AMS knob.

3-2. Exiting the Test Mode

Turn POWER switch off.

3-3. Basic Operations of the Test Mode

All operations are performed using the AMS knob, ENTER/YES button, and EDIT/NO button.
The functions of these buttons are as follows.

Function	Contents
AMS knob	Changes parameters and modes
ENTER/YES button	Proceeds onto the next step. Finalizes input.
EDIT/NO button	Returns to previous step. Stops operations.

3-4. Selecting the Test Mode

Thirteen test modes are selected by turning the AMS knob.

Display	Contents	Display	Contents
TEMP ADJUST	Temperature compensation offset adjustment	EP MODE	Non-volatile memory mode *
LDPWR ADJUST	Laser power adjustment	VERSION DISP	Micro computer soft version
EFBAL ADJUST	Traverse adjustment	RS232C CHECK	RS232C check
FBIAS ADJUST	Focus bias adjustment	PARA-RMT CHK	Parari mode check
FBIAS CHECK	Focus bias check	HOURS MT DISP	Hours meter operating mode
CPLAY MODE	Continuous playback mode	SETUP INIT	Setup initialize mode
CREC MODE	Continuous recording mode		

For detailed description of each adjustment mode, refer to 4. Electrical Adjustments.
If a different adjustment mode has been selected by mistake, press the EDIT/NO button to exit from it.
* The EP MODE, RS232C CHECK and PARA-RMT CHK is not used in servicing. If set accidentally, press the EDIT/NO button immediately to exit it.

3-4-1. Operating the Continuous Playback Mode

1. Entering the continuous playback mode
   ① Set the disc in the unit (Whichever recordable discs or discs for playback only are available.)
   ② Rotate the AMS knob and display “CPLAY MODE”.
   ③ Press the ENTER/YES button to change the display to “CPLAYIN”.
   ④ When access completes, the display changes to “C1 = □□□□ AD = □□”.
   Note : The “□” displayed are arbitrary numbers.
2. Changing the parts to be played back
   ① Press the ENTER/YES button during continuous playback to change the display to “CPLY MID”, “CPLAY OUT”.
   When pressed another time, the parts to be played back can be changed.
   ② When access completes, the display changes to “C1 = □□□□ AD = □□”.
   Note : The “□” displayed are arbitrary numbers.
3. Ending the continuous playback mode
   ① Press the EDIT/NO button. The display will change to “CPLY MODE”.
   ② Press the EJECT button and remove the disc.
   Note 1 : The playback start addresses for IN, MID, and OUT are as follows.
   IN 40h cluster
   MID 300h cluster
   OUT 700h cluster

3-4-2. Operating the Continuous Recording Mode

1. Entering the continuous recording mode
   ① Set the MO disc in the unit.
   ② Rotate the AMS knob and display “CREC MODE”.
   ③ Press the ENTER/YES button to change the display to “CREC IN”.
   ④ When access completes, the display changes to “CREC (□□□□)”.
   Note : The “□” displayed are arbitrary numbers.
2. Changing the parts to be recorded
   ① When the ENTER/YES button is pressed during continuous recording, the display changes to “CREC MID”, “CREC OUT” . When pressed another time, the parts to be recorded can be changed.
   ② When access completes, the display changes to “CREC (□□□□)”.
   Note : The “□” displayed are arbitrary numbers.
3. Ending the continuous recording mode
   ① Press the EDIT/NO button. The display changes to “CREC MODE”.
   ② Press the EJECT button and remove the disc.

Note 1 : The recording start addresses for IN, MID, and OUT are as follows.
IN 40h cluster
MID 300h cluster
OUT 700h cluster

Note 2 : The EDIT/NO button can be used to stop recording anytime.
Note 3 : During the test mode, the erasing-protection tab will not be detected. Therefore be careful not to set the continuous recording mode when a disc not to be erased is set in the unit.
Note 4 : Do not perform continuous recording for long periods of time above 5 minutes.
Note 5 : During continuous recording, be careful not to apply vibration.

3-4-3. Non-Volatile Memory Mode

This mode reads and writes the contents of the non-volatile memory.
It is not used in servicing. If set accidentally, press the EDIT/NO button immediately to exit it.

3-5. Functions of Other buttons

Function	Contents
►II	Sets continuous playback when pressed in the STOP state. When pressed during continuous playback, the tracking servo turns ON/OFF.
■	Stops continuous playback and continuous recording.
►►	The sled moves to the outer circumference only when this is pressed.
◄◄	The sled moves to the inner circumference only when this is pressed.
●	Turns recording ON/OFF when pressed during continuous playback.
SINGLE	Switches between the pit and groove modes when pressed.
A. MODE	Switches the spindle servo mode (CLVS and A).
DISPLAY	Switches the display when pressed.Returns to previous step. Stops operations.

Note : The erasing-protection tab is not detected during the test mode. Recording will start regardless of the position of the erasing-protection tab when the ● (REC) button is pressed.

3-6. Test Mode Displays

Each time the DISPLAY button is pressed, the display changes in the following order.
MODE display→Error rate display→Address display

1. MODE display
   Displays “TEMP ADJUST”, “CPLAY MODE”, etc.
2. Error rate display
   Error rates are displayed as follows.
   C1 = □□□□ AD = □□□□
   C1 = : Indicates C1 error
   AD = : Indicates ADER
3. Address display
   Addresses are displayed as follows.
   h = □□□□ s = □□□□ (MO pit and CD)
   h = □□□□ a = □□□□ (MO groove)
   h = : Header address
   s = : SUBQ address
   a = : ADIP address
   * is displayed when the address cannot be read.

3-7. Meanings of Other Displays

Display	Contents		
	Light	Off	Blinking
►II LED	During continuous playback	STOP	
I►I LED	Tracking servo OFF	Tracking servo ON	
REC ● LED	Recording mode ON	Recording mode OFF	
SYNC	CLV LOCK	CLV UNLOCK	
TRACK	Pit	Groove	
DISC	High reflection	Low reflection	
SPEED	CLV-S	CLV-A	
A. PAUSE	ABCD adjustment completed		
REPEAT 1	(Focus auto gain successful Tracking auto gain failed)		(Focus auto gain successful Tracking auto gain failed)

3-8. Precautions for Use of Test Mode

① As loading related operations will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it.
Even if the EJECT button is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating.
Therefore, it will be ejected while rotating.
Always press the EDIT/NO button first before pressing the EJECT button.

② The erasing-protection tab is not detected in the test mode. Therefore, when modes which output the recording laser power such as continuous recording mode and traverse adjustment mode, etc. are set, the recorded contents will be erased regardless of the position of the tab. When using a disc that is not to be erased in the test mode, be careful not to enter the continuous recording mode and traverse adjustment mode.

③ Most buttons can not be used while the error rate is displayed due to bugs of IC121 CXD2535CR.

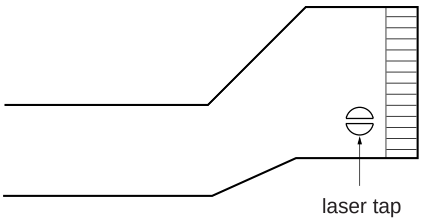
SECTION 4
ELECTRICAL ADJUSTMENTS

4-1. Precautions for Checking Laser Diode Emission

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eye-sight.

4-2. Precautions for Use of optical pickup (KMS-210A)

As the laser diode in the optical pickup is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pickup flexible board

4-3. Precautions for Adjustments

1) When replacing the following parts, perform the adjustments and checks with ○ in the order shown in the following table.

	Optical Pick-up	BD Board		
		IC171	D101	IC101, IC121, IC191
1. Temperature compensation offset adjustment	×	○	○	○
2. Laser power adjustment	○	○	×	○
3. Traverse adjustment	○	○	×	○
4. Focus bias adjustment	○	○	×	○
5. Error rate check	○	○	×	○

2) Set the test mode when performing adjustments.
   After completing the adjustments, exit the test mode.
3) Perform the adjustments in the order shown.
4) Use the following tools and measuring devices.
   - MD test disc (CD) TDYS-1 (Parts No. 4-963-646-01)
   - Laser power meter LPM-8001 (Parts No. J-2501-046-A)
   - Oscilloscope
   - Digital voltmeter
   - Thermometer
5) When observing several signals on the oscilloscope, etc., make sure that VC and GND do not connect inside the oscilloscope.
   (VC and GND will become short-circuited.)

4-4. Creating MO Continuously Recorded Disc

* This disc is used in focus bias adjustment and error rate check. The following describes how to create a MO continuous recording disc.

1. Insert a MO disc (blank disc) commercially available.
2. Rotate the AMS knob and display “CREC MODE”.
3. Press the ENTER/YES button and display “CREC IN”.
4. Press the ENTER/YES button again to display “CREC MID”.
   “CREC (0300)” is displayed for a moment and recording starts.
5. Complete recording within 5 minutes.
6. Press the EDIT/NO button and stop recording .
7. Press the EJECT button and remove the MO disc.

The above has been how to create a continuous recording data for the focus bias adjustment and error rate check.

Note :
- Be careful not to apply vibration during continuous recording.

4-5. Temperature Compensation Offset Adjustment

Save the temperature data at that time in the non-volatile memory as 25 ˚C reference data.

Note :

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 ˚C to 28 ˚C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

Adjusting Method :

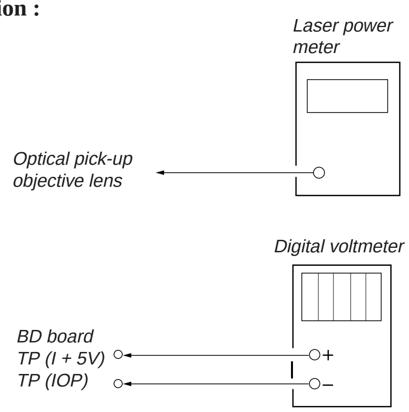
1. Rotate the AMS knob and display “TEMP ADJUST”.
2. Press the ENTER/YES button and select the “TEMP ADJUST” mode.
3. “TEMP = □□” and the current temperature data will be displayed.
4. To save the data, press the ENTER/YES button.
   When not saving the data, press the EDIT/NO button.
5. When the ENTER/YES button is pressed, “TEMP = □□ SAVE” will be displayed for some time, followed by “TEMP ADJUST”.
   When the EDIT/NO button is pressed, “TEMP ADJUST” will be displayed.

Specifications :

The “TEMP = □□” should be within “E0 - EF”, “F0 - FF”, “00 - 0F”, “10 - 1F” and “20 - 2F”.

4-6. Laser Power Adjustment

Connection :

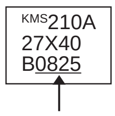


Adjusting Method :

1. Set the laser power meter on the objective lens of the optical pickup.
   (When it cannot be set properly, press the ◀◀ button or ▶▶ button and move the optical pickup.)
   Connect the digital volt meter to TP (IOP) and TP (I+5V).
2. Rotate the AMS knob and display “LDPWRADJUST”.
   (Laser power : For adjustment)
3. Press the ENTER/YES button twice and display “LD $ 4B = 3.5 mW”.
4. Adjust RV102 of the BD board so that the reading of the laser power meter becomes $3.4^{+0.1}_{-0}$ mW.
5. Press the ENTER/YES button and display “LD $ 96 = 7.0 mW”.
   (Laser power:MO reading)
6. Check that the laser power meter and digital voltmeter readings satisfy the specified value.

   Specification :
   Laser power meter reading : 7.0 ± 0.3 mW
   Digital voltmeter reading : Optical pickup displayed value ± 10%

   (Optical pickup label)



Iop = 82.5 mA in this case
Iop (mA) = Digital voltmeter reading (mV)/ 1 (Ω)

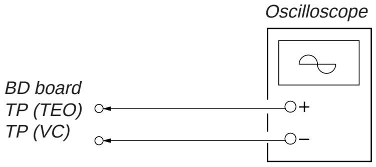
7. Press the ENTER/YES button and display “LD $ 0F = 0.7 mW”.
   (Laser power: MO reading)
8. Check that the laser power meter at this time satisfies the specified value.

   Specification :
   Laser power meter reading : 0.70 ± 0.1 mW

9. Press the EDIT/NO button and display “LDPWR ADJUST’, and stop laser emission.
   (The EDIT/NO button is effective at all times to stop the laser emission.)

4-7. Traverse Adjustment

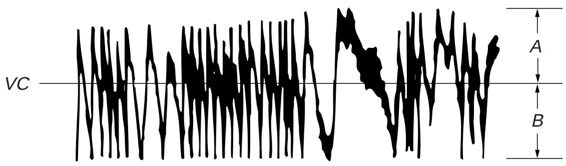
Connection :



Adjusting method :

1. Connect an oscilloscope to TP (TEO) and TP (VC) of the BD board.
2. Load a MO disc (any available on the market).
3. Press the ◀◀ button or ▶▶ button and move the optical pickup outside the pit.
4. Rotate the AMS knob and display “EFBAL ADJUST”.
5. Press the ENTER/YES button and display “EFBAL MO-W”.
   (Laser power WRITE power/Focus servo ON/tracking servo OFF/ spindle (S) servo ON)
6. Adjust RV101 of the BD board so that the waveform of the oscilloscope becomes the specified value.
   (MO groove write power traverse adjustment)

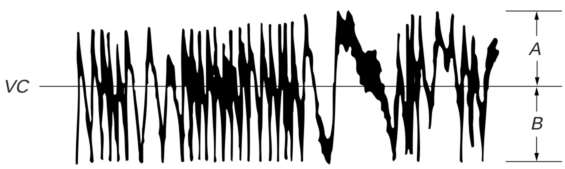
(Traverse Waveform)



Specification A = B

7. Press the ENTER/YES button and display “EFB = $ □ MO-R”.
   (Laser power : MO reading)
8. Rotate the AMS knob so that the waveform of the oscilloscope becomes the specified value.
   (When the AMS knob is rotated, the □ of “EFB- □ ” changes and the waveform changes.) In this adjustment, waveform varies at intervals of approx. 3%. Adjust the waveform so that the specified value is satisfied as much as possible.
   (MO groove read power traverse adjustment)

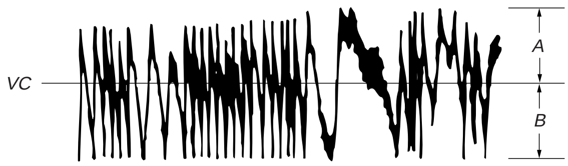
(Traverse Waveform)



Specification A = B

9. Press the ENTER/YES button, display “EFB = $ □ SAVE” for a moment and save the adjustment results in the non-volatile memory.
   Next “EFBAL MO-P” is displayed.
10. Press the ENTER/YES button and display “EFB = $ □ MO-P”.
    The optical pickup moves to the pit area automatically and servo is imposed.
11. Rotate the AMS knob until the waveform of the oscilloscope moves closer to the specified value.
    In this adjustment, waveform varies at intervals of approx. 3%. Adjust the waveform so that the specified value is satisfied as much as possible.

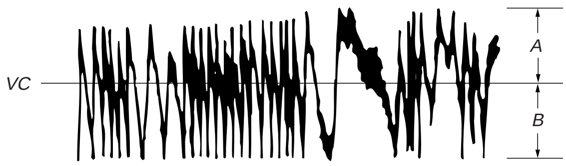
(Traverse Waveform)



Specification A = B

12. Press the ENTER/YES button, display “EFB = □ SAVE” for a moment and save the adjustment results in the non-volatile memory.
    Next “EFBAL CD” is displayed. The disc stops rotating automatically.
13. Press the EJECT button and remove the MO disc.
14. Load the test disc TDYS-1.
15. Press the ENTER/YES button and display “EFB = □ CD”. Servo is imposed automatically.
16. Rotate the AMS knob so that the waveform of the oscilloscope moves closer to the specified value.
    In this adjustment, waveform varies at intervals of approx. 3%. Adjust the waveform so that the specified value is satisfied as much as possible.

(Traverse Waveform)

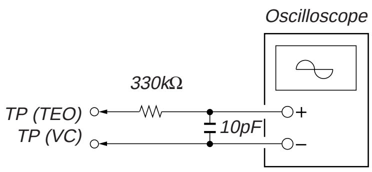


Specification A = B

17. Press the ENTER/YES button, display “EFB = $ □ SAVE” for a moment and save the adjustment results in the non-volatile memory.
    Next “EFBAL ADJUST” is displayed.
18. Press the EJECT button and remove the test disc TDYS-1.

Note 1) Data will be erased during MO reading if a recorded disc is used in this adjustment.

Note 2) If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



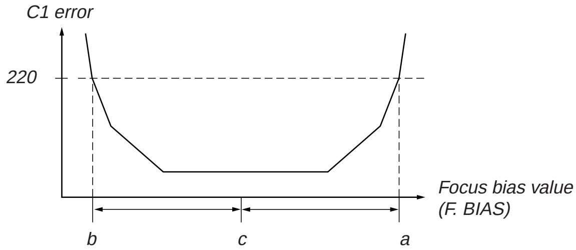
4-8. Focus Bias Adjustment

Adjusting Method :

1. Load a continuously recorded disc (Refer to "4-4. Creating MO Continuously Recorded Disc".).
2. Rotate the AMS knob and display "CPLAY MODE".
3. Press the ENTER/YES button twice and display "CPLAY MID".
4. Press the EDIT/NO button when "C1 = □□□□ AD = □□" is displayed.
5. Rotate the AMS knob and display "FBIAS ADJUST".
6. Press the ENTER/YES button and display " □□□□/□□ a = □□".
   The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [a =] indicate the focus bias value.
7. Rotate the AMS knob in the clockwise direction and find the focus bias value at which the C1 error rate becomes 220.
8. Press the ENTER/YES button and display " □□□□/□□ b = □□".
9. Rotate the AMS knob in the counterclockwise direction and find the focus bias value at which the C1 error rate becomes 220.
10. Press the ENTER/YES button and display " □□□□/□□ c = □□".
11. Check that the C1 error rate is below 50 and ADER is 00. Then press the ENETR/YES button.
12. If the "(□□)" in "□□ - □□ - □□ (□□)" is above 20, press the ENTER/YES button.
    If below 20, press the EDIT/NO button and repeat the adjustment from step 2 again.
13. Press the EDIT/NO button and press the EJECT button to remove the continuously recorded disc.

Note 1 : The relation between the C1 error and focus bias is as shown in the following figure. Find points a and b in the following figure using the above adjustment. The focal point position C is automatically calculated from points a and b.

Note 2 : As the C1 error rate changes, perform the adjustment using the average vale.



4-9. Error Rate Check

4-9-1. CD Error Rate Check

Checking Method :

1. Load a test disc TDYS-1.
2. Rotate the AMS knob and display "CPLAY MODE".
3. Press the ENTER/YES button twice and display "CPLAY MID".
4. "C1 = □□□□ AD = □□" is displayed.
5. Check that the C1 error rate is below 20.
6. Press the EDIT/NO button, stop playback, press the EJECT button, and remove the test disc.

4-9-2. MO Error Rate Check

Checking Method :

1. Load a continuously recorded disc (Refer to "4-4. Creating MO Continuously Recorded Disc".).
2. Rotate the AMS knob and display "CPLAY MODE".
3. Press the ENTER/YES button twice and display "CPLAY MID".
4. "C1 = □□□□ AD = □□" is displayed.
5. If the C1 error rate is below 50, check that ADER is 00.
6. Press the EDIT/NO button, stop playback, press the EJECT button, and remove the continuously recorded disc.

4-10. Focus Bias Check

Change the focus bias and check the focus tolerance amount.

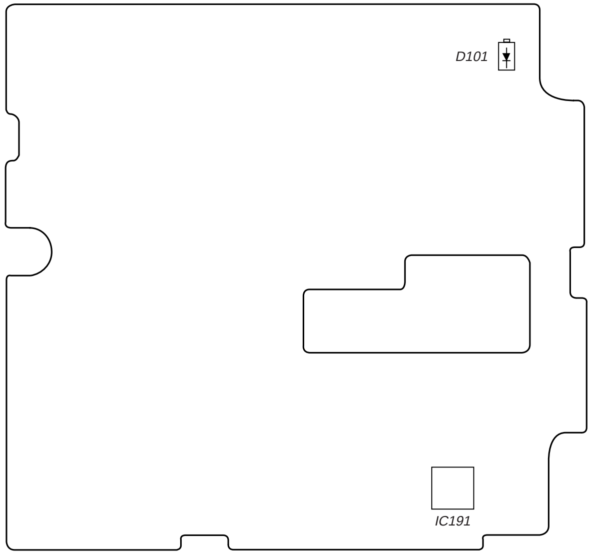
Checking Method :

1. Load a continuously recorded disc (Refer to "4-4. Creating MO Continuously Recorded Disc".).
2. Rotate the AMS knob and display "CPLAY MODE".
3. Press the ENTER/YES button twice and display "CPLAY MID".
4. Press the EDIT/NO button when "C1 = □□□□ AD = □□" is displayed.
5. Rotate the AMS knob and display "FBIAS CHECK".
6. Press the ENTER/YES button and display " □□□□/□□ c = □□".
   The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [c =] indicate the focus bias value.
   Check that the C1 error is below 50 and ADER is 00.
7. Press the ENTER/YES button and display " □□□□/□□ b = □□".
   Check that the C1 error is not below 220 and ADER is not above 00 every time.
8. Press the ENTER/YES button and display " □□□□/□□ a = □□".
   Check that the C1 error is not below 220 and ADER is not above 00 every time.
9. Press the EDIT/NO button, next press the EJECT button, and remove the continuously recorded disc.

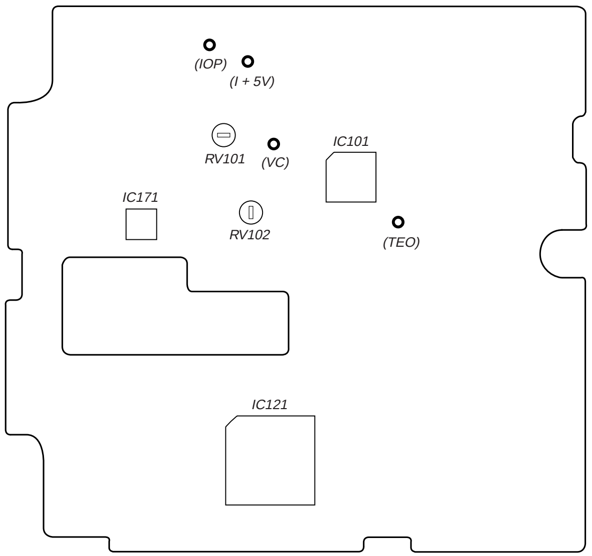
Note 1 : If the C1 error and ADER are above 00 at points a or b, the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

4-11. Adjusting Points and Connecting Points

[BD BOARD] (COMPONENT SIDE)

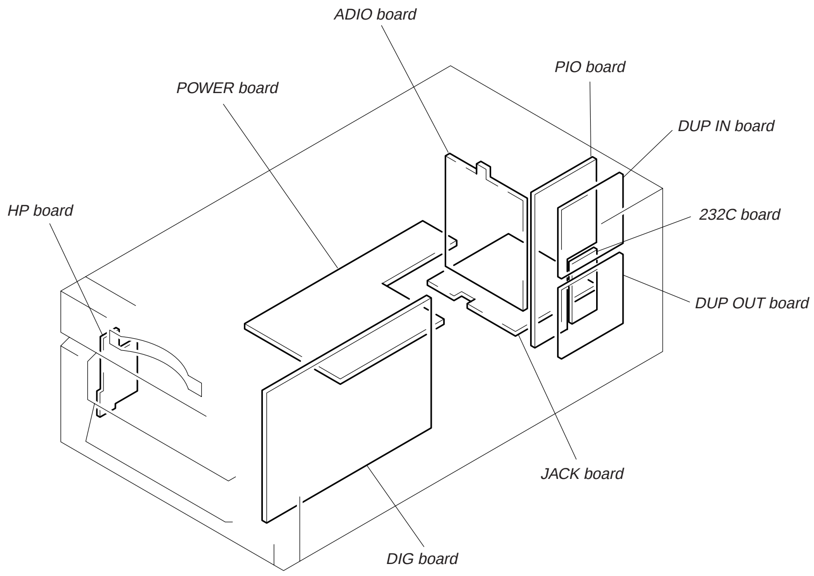


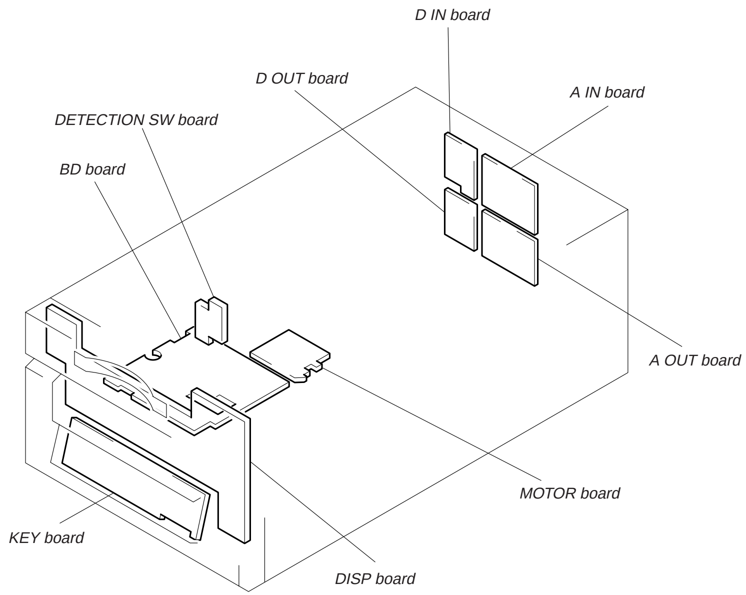
[BD BOARD] (CONDUCTOR SIDE)



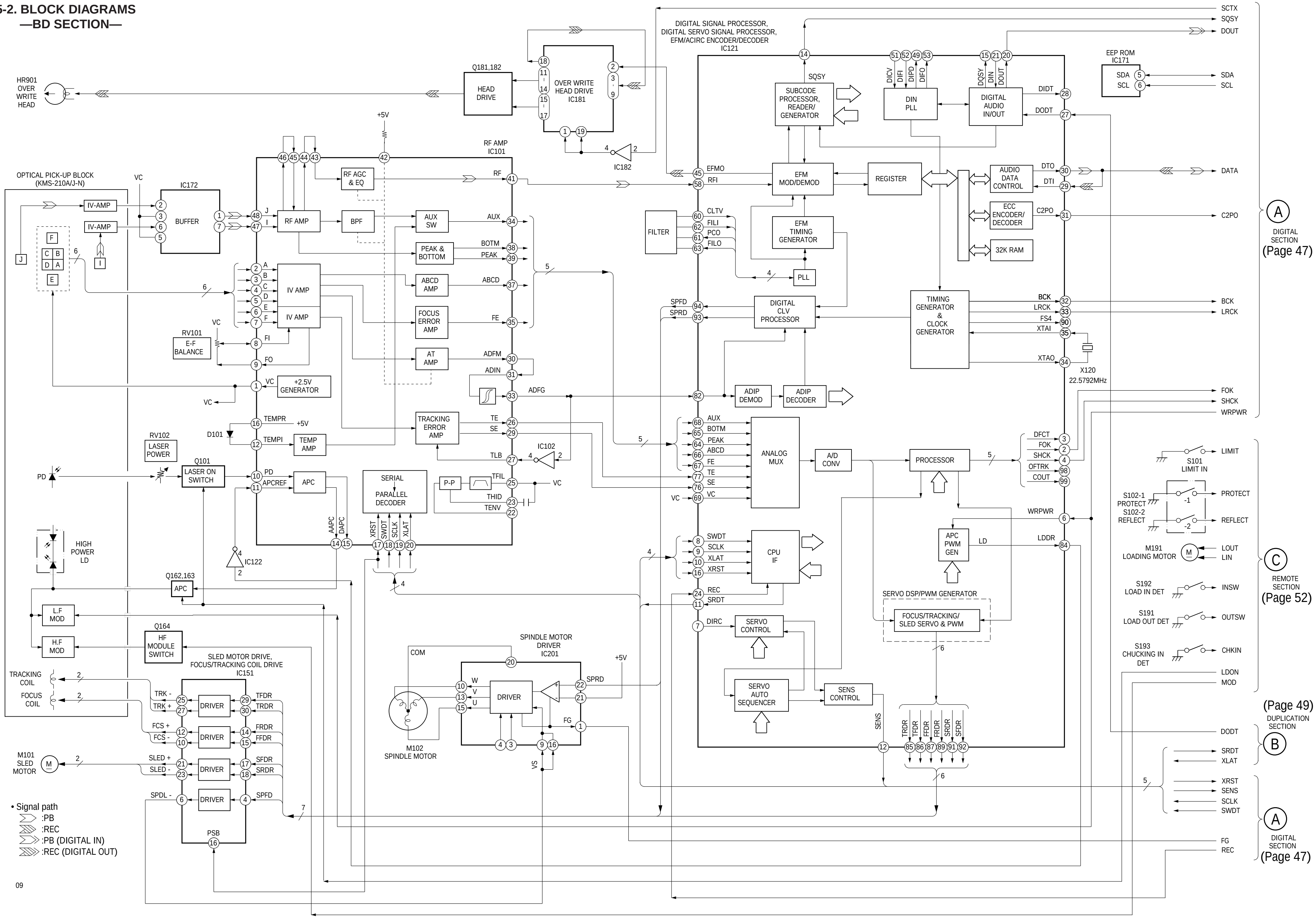
SECTION 5
DIAGRAMS

5-1. CIRCUIT BOARDS LOCATION

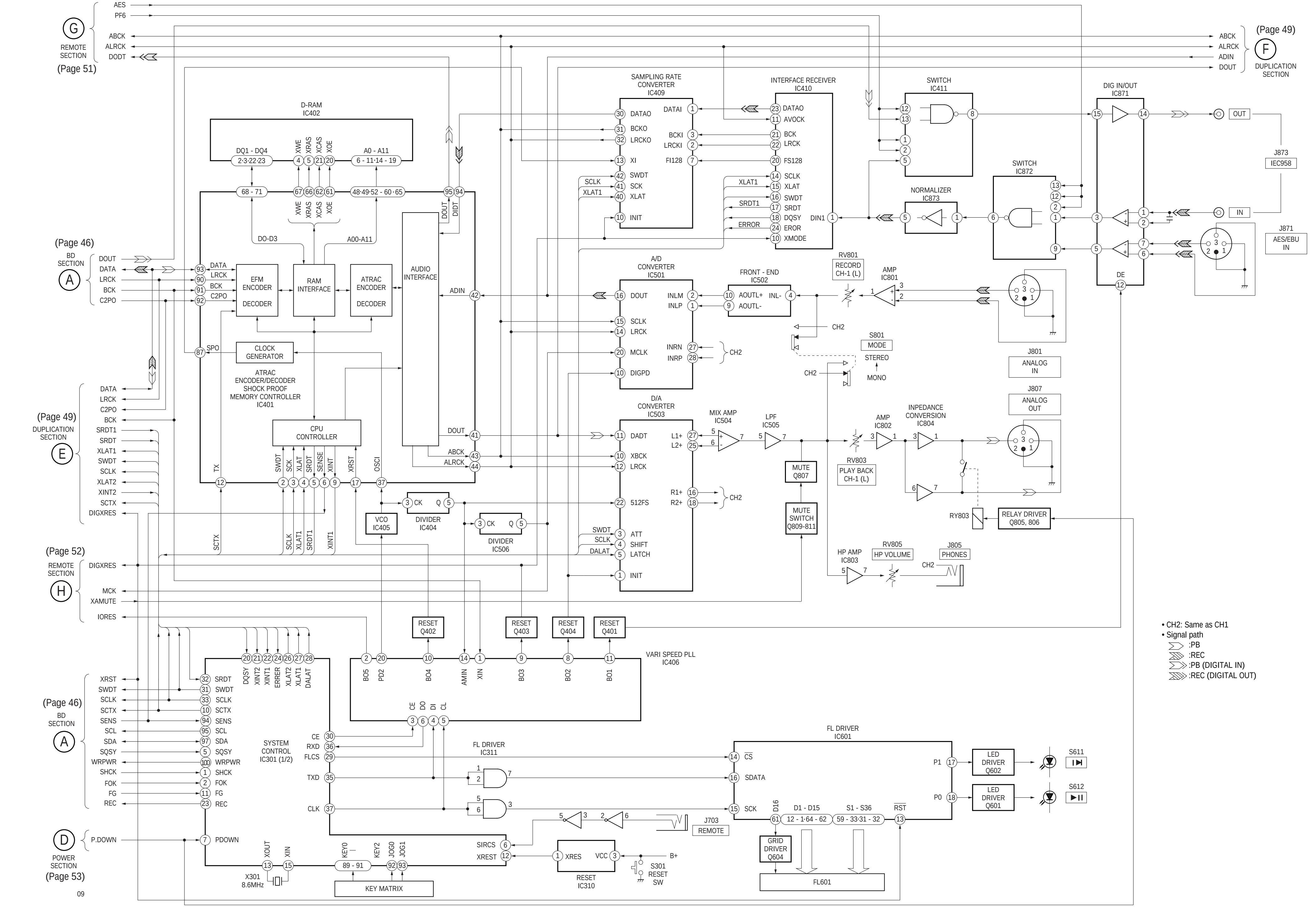




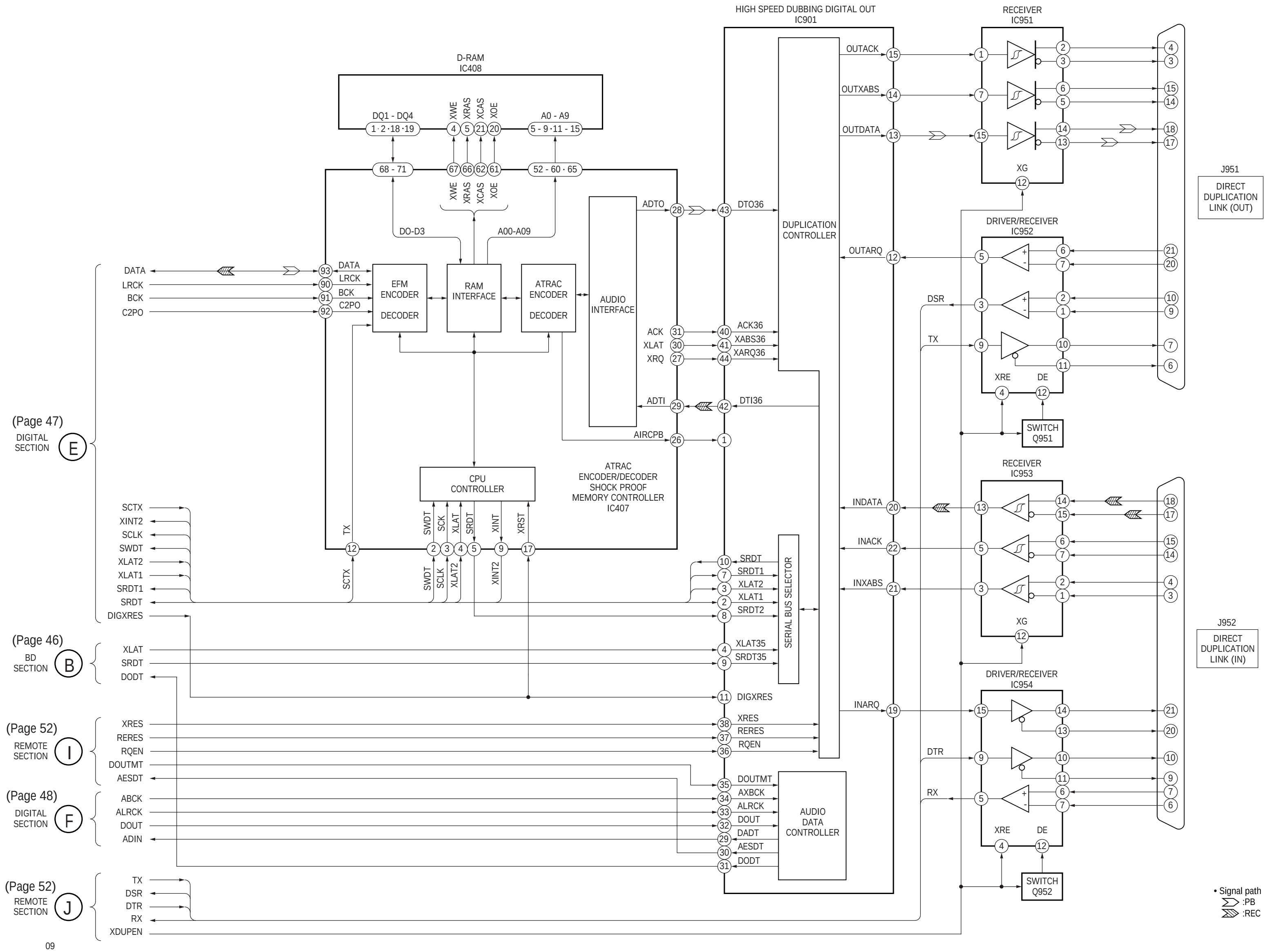
5-2. BLOCK DIAGRAMS
—BD SECTION—



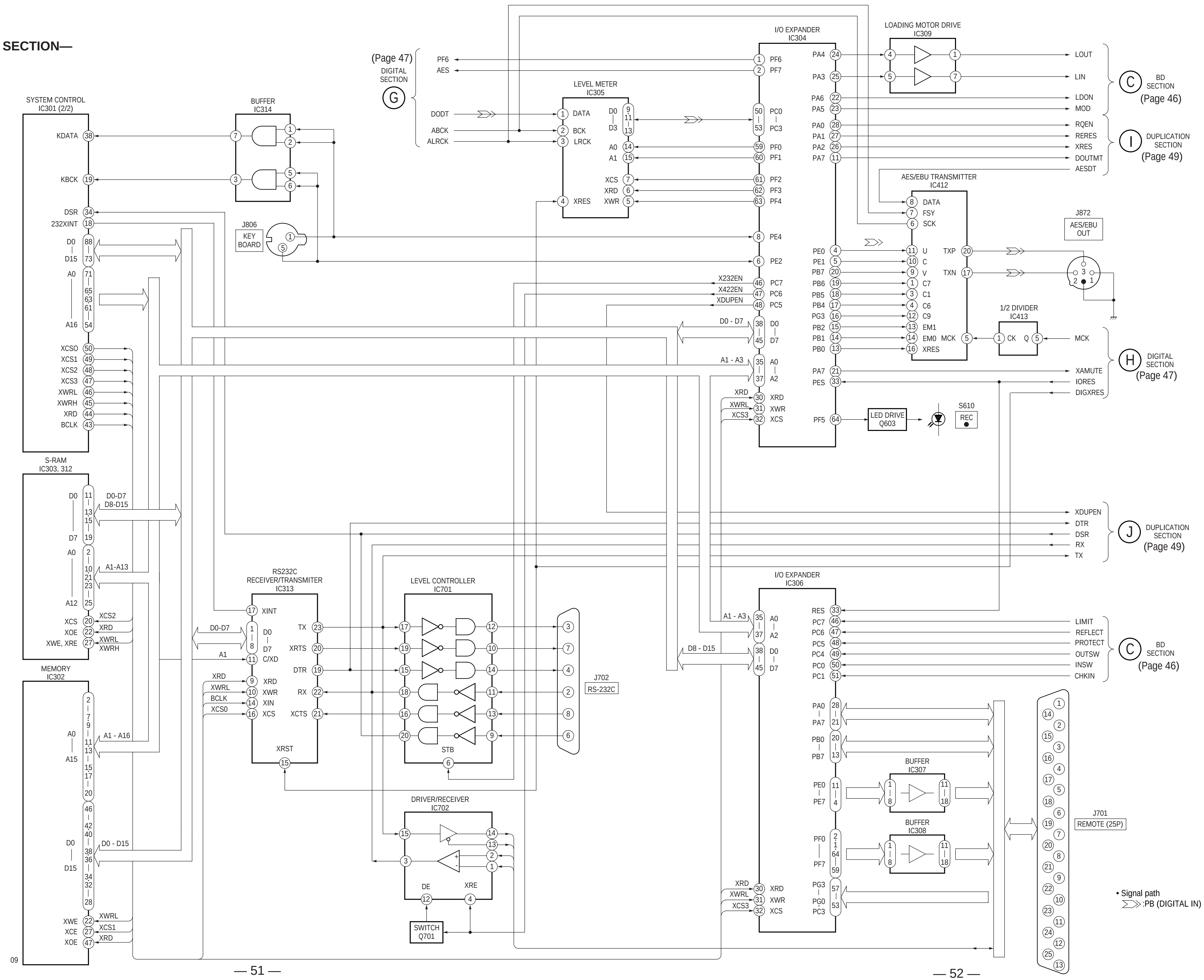
—DIGITAL SECTION—



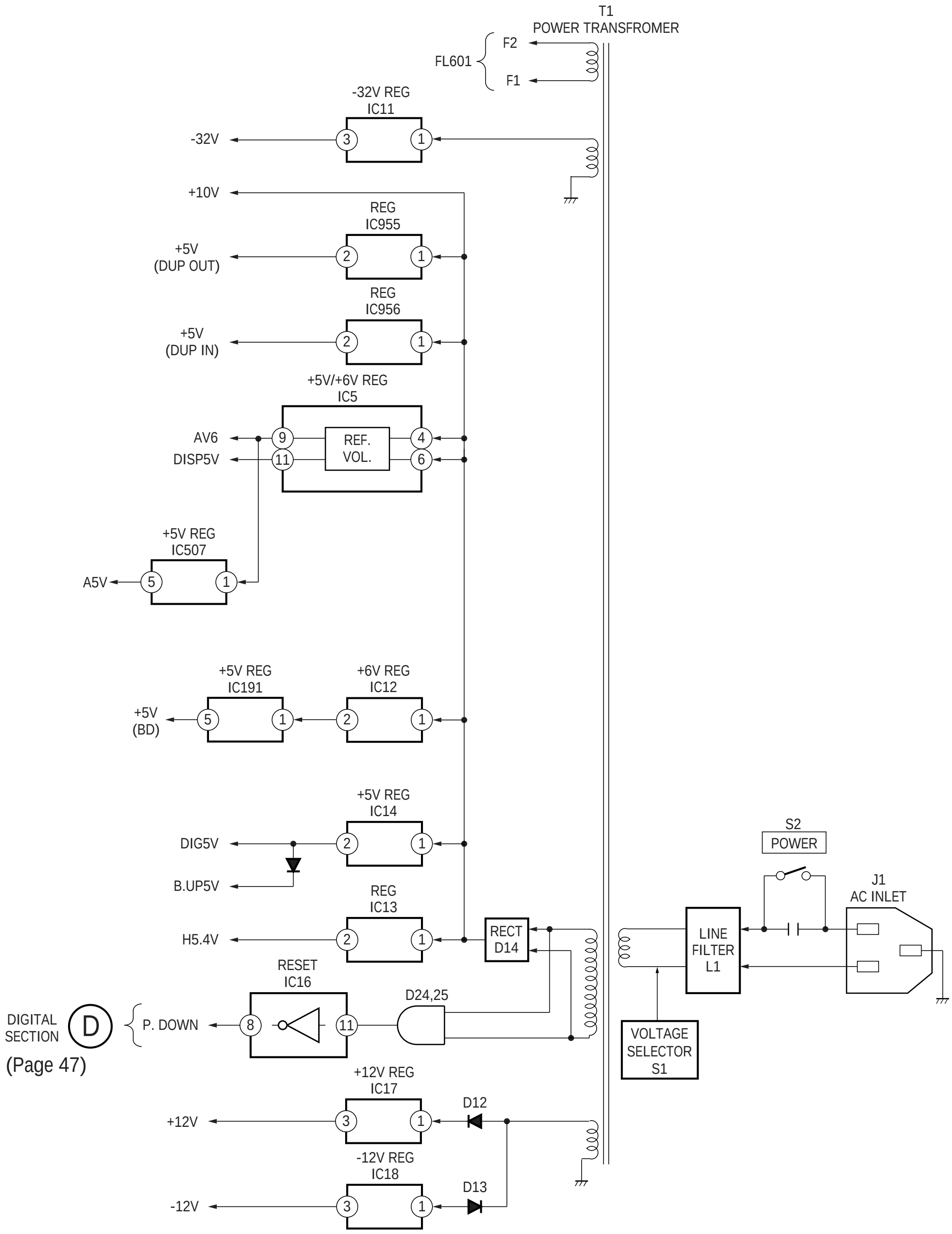
—DUPLICATION SECTION—



—REMOTE SECTION—



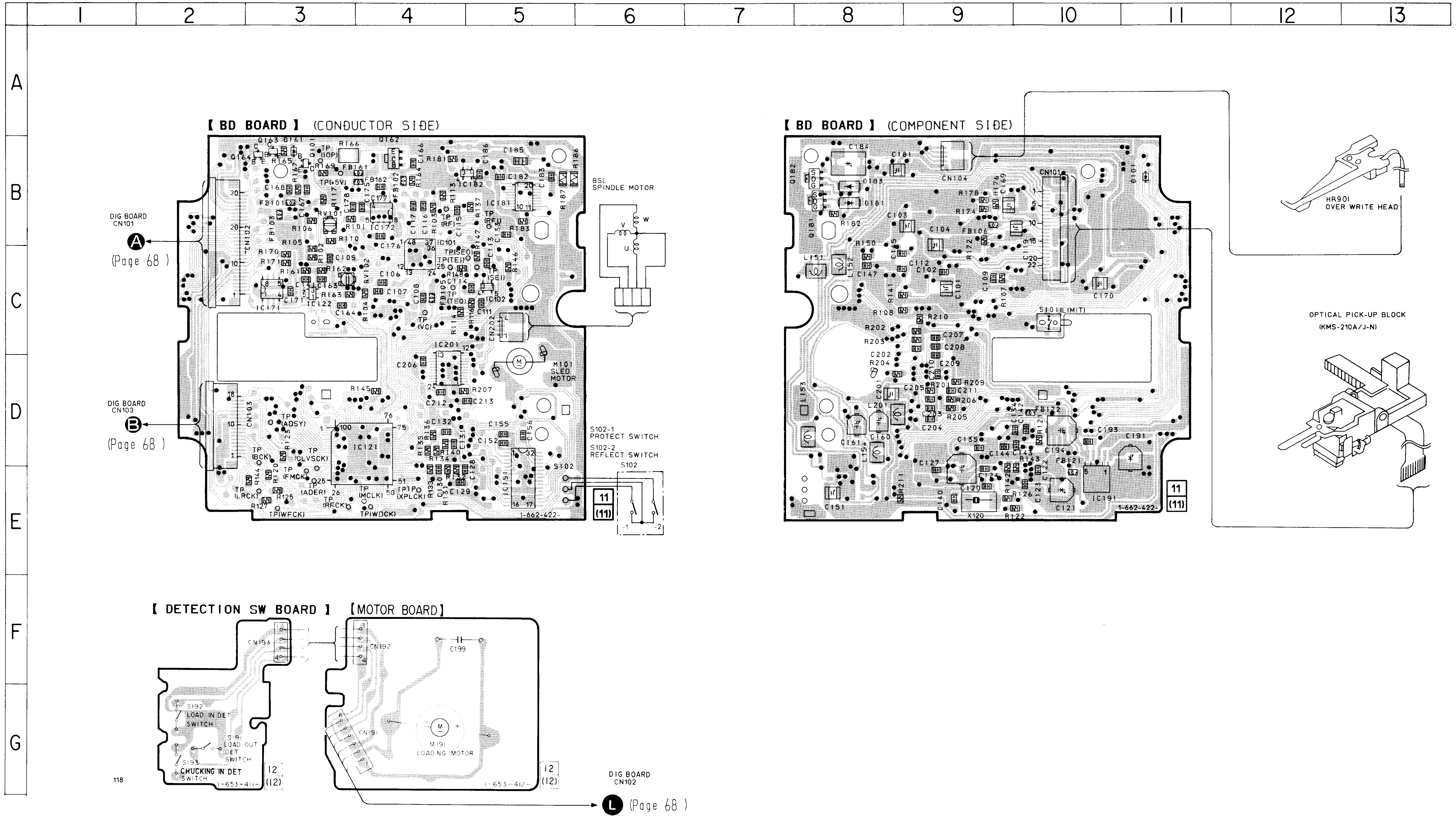
— POWER SECTION —



5-3. PRINTED WIRING BOARD — BD SECTION —
• See page 44 for Circuit Boards Location.

• **Semiconductor Location**

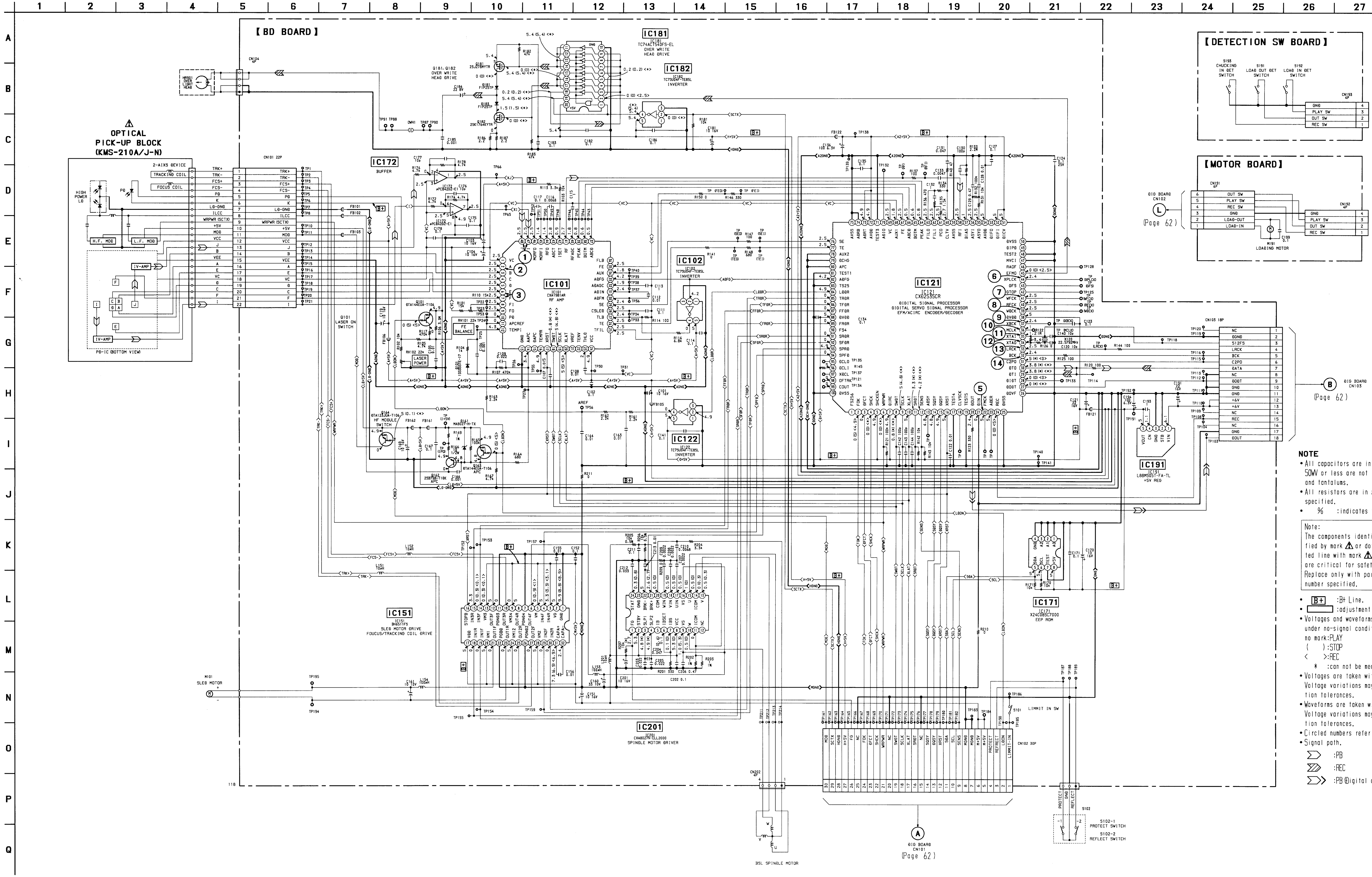
Ref. No.	Location
D101	B-11
D161	B-3
D181	B-8
D183	B-8
IC101	C-4
IC102	C-5
IC121	D-4
IC122	C-3
IC151	E-5
IC171	C-3
IC181	B-5
IC182	B-5
IC191	E-10
IC201	D-4
Q101	B-3
Q162	B-4
Q163	B-3
Q164	B-3
Q181	B-8
Q182	B-8

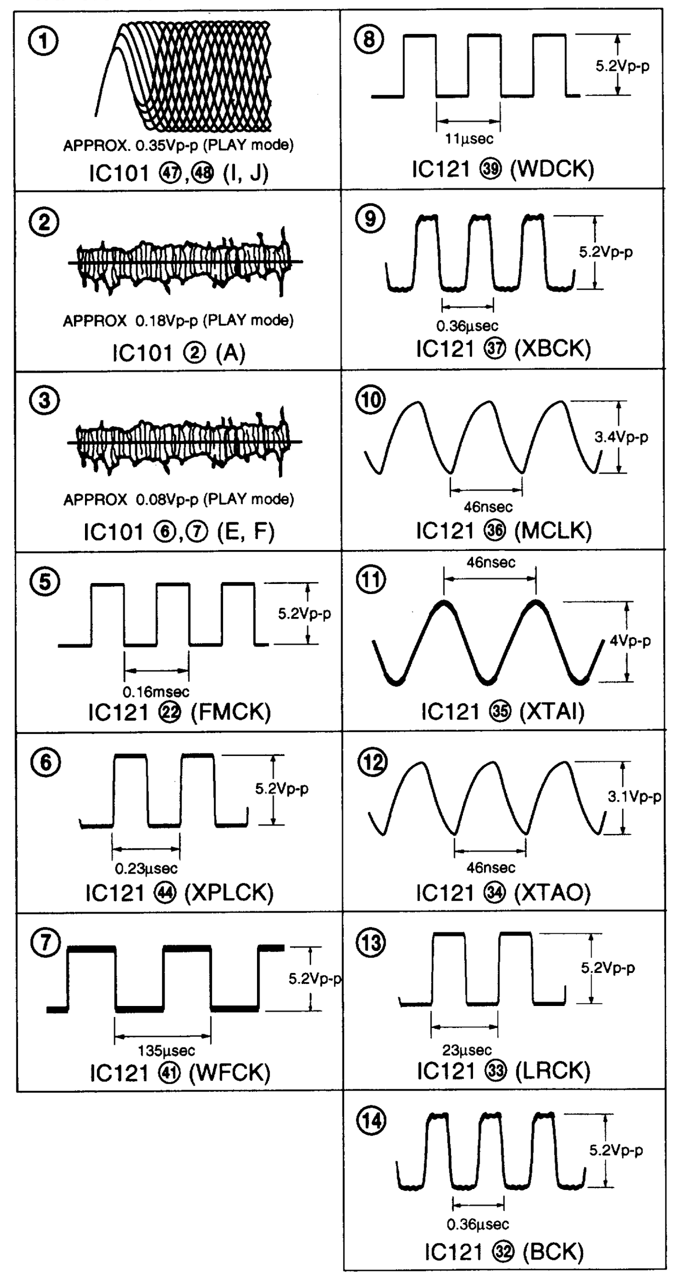


Note:
• o—— : parts extracted from the component side.
• ● : Through hole.
• ▒ : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)

5-4. SCHEMATIC DIAGRAM — BD SECTION —

• See page 89 for IC Pin Functions. • See page 100 for IC Block Diagrams.





NOTE


- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiės par une marque ⚠ sont critiques pour la sėcuritė. Ne les remplacer que par une piėce portant le numėro spėcifiė.

- [B+] : B+ Line.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: PLAY
  (   ) : STOP
  <   > : REC
  * : can not be measured.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⊃ : PB
  ⊃ (hatched) : REC
  ⊃⟩ : PB (Digital out)

5-5. SCHEMATIC DIAGRAM — DIGITAL SECTION —

• See page 89 for IC Pin Functions.
• See page 100 for IC Block Diagrams.

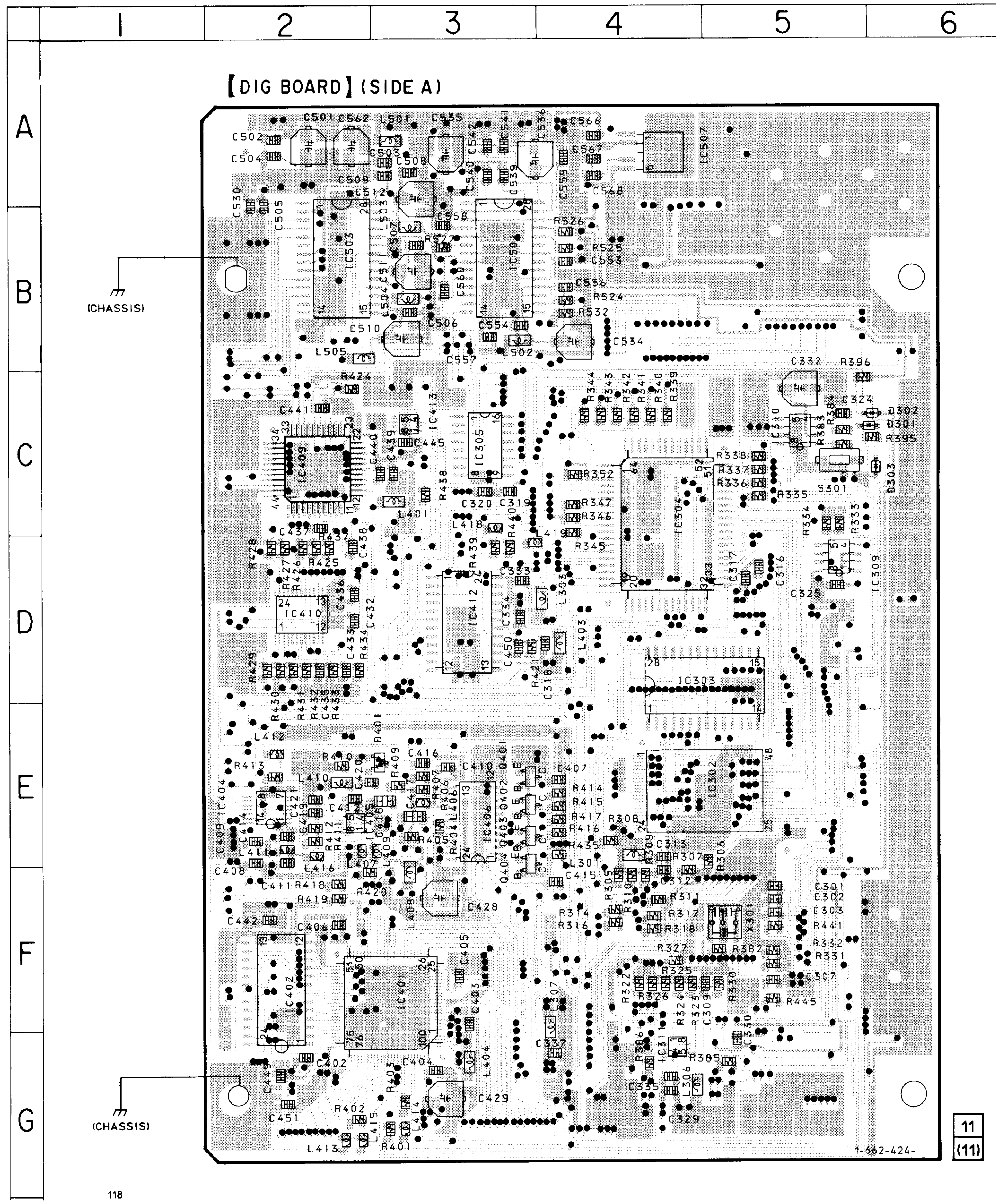


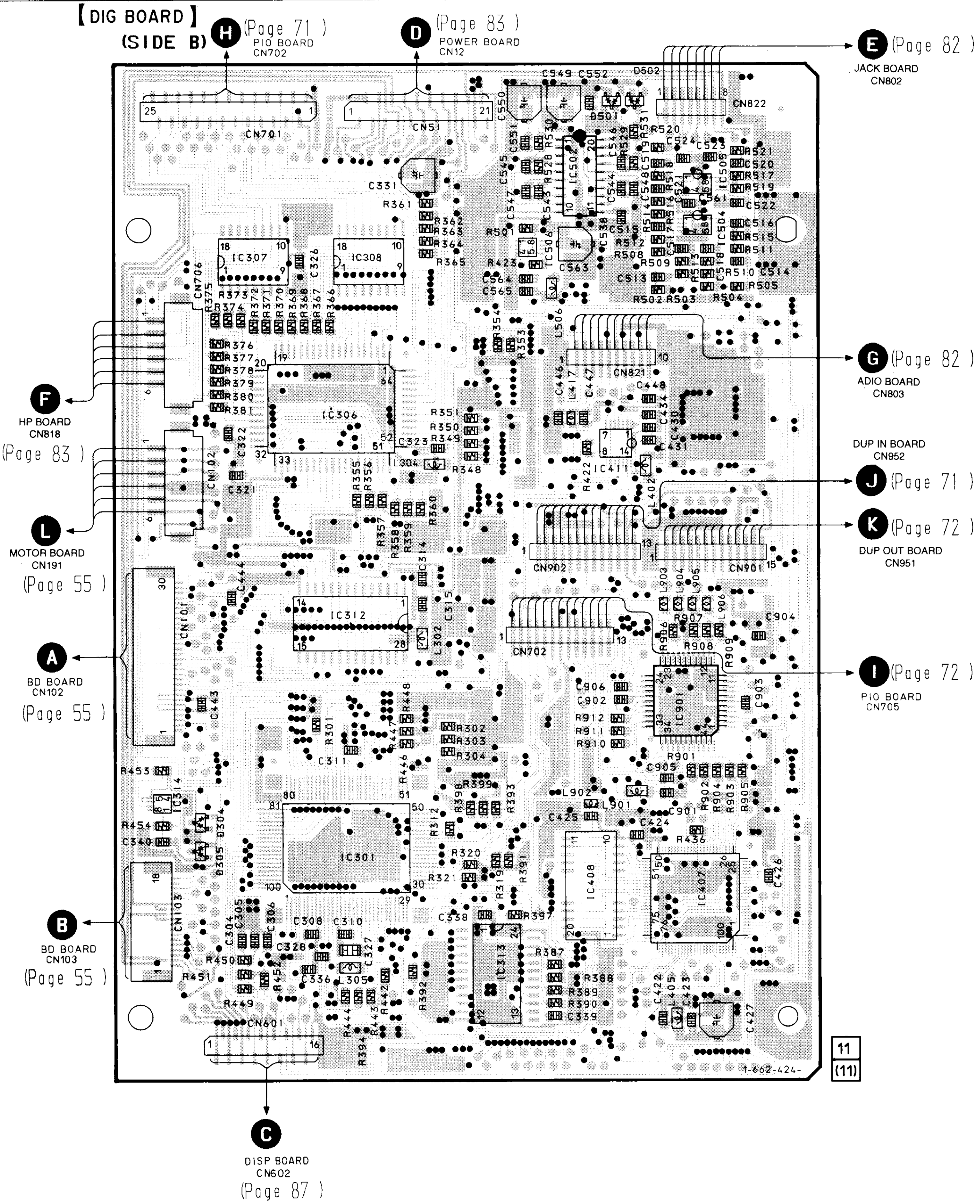
NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- [B+] : B+ Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: PLAY
  ( ) : STOP
  < > : REC
  * : can not be measured.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⟩ : PB
  ⟩ (hatched) : REC
  ⟩⟩ : PB (Digital out)
  ⟩⟩ (hatched) : REC (Digital in)

5-6. PRINTED WIRING BOARD — DIGITAL SECTION —

• See page 44 for Circuit Boards Location.





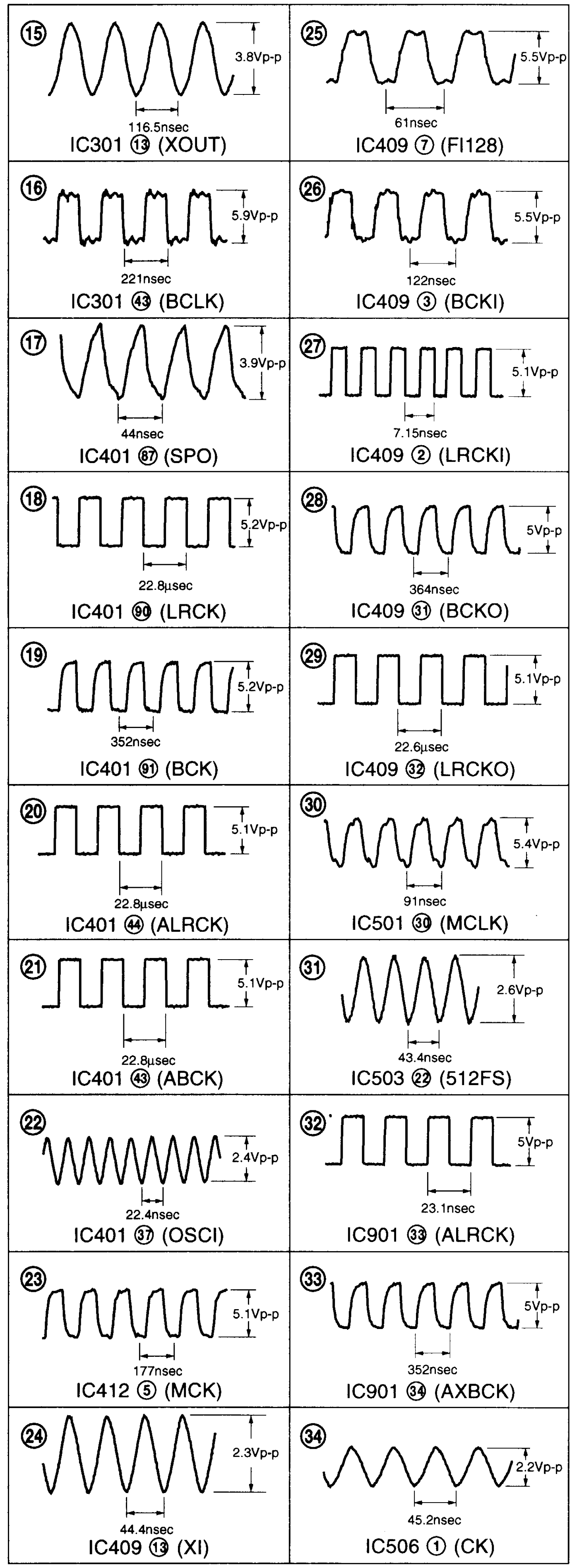
• Semiconductor Location

Ref. No.	Location
D301	C-6
D302	C-6
D303	C-6
D304	F-8
D305	F-8
D401	E-3
D501	A-11
D502	A-11
IC301	F-9
IC302	E-5
IC303	D-4
IC304	C-4
IC305	C-3
IC306	C-9
IC307	B-8
IC308	B-9
IC309	D-5
IC310	C-5
IC311	G-4
IC312	D-9
IC313	G-10
IC314	F-8
IC401	F-3
IC402	F-2
IC404	E-2
IC405	E-2
IC406	E-3
IC407	F-11
IC408	F-10
IC409	C-2
IC410	D-2
IC411	C-11
IC412	D-3
IC413	C-3
IC501	B-3
IC502	B-10
IC503	B-2
IC504	B-11
IC505	B-11
IC506	B-10
IC507	A-4
IC901	E-11
Q401	E-3
Q402	E-3
Q403	E-3
Q404	F-3

Note:

- ○── : parts extracted from the component side.
- ─── : parts extracted from the conductor side.
- ● : Through hole.
- △ : Internal component.
- ▒ : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)

• Waveforms

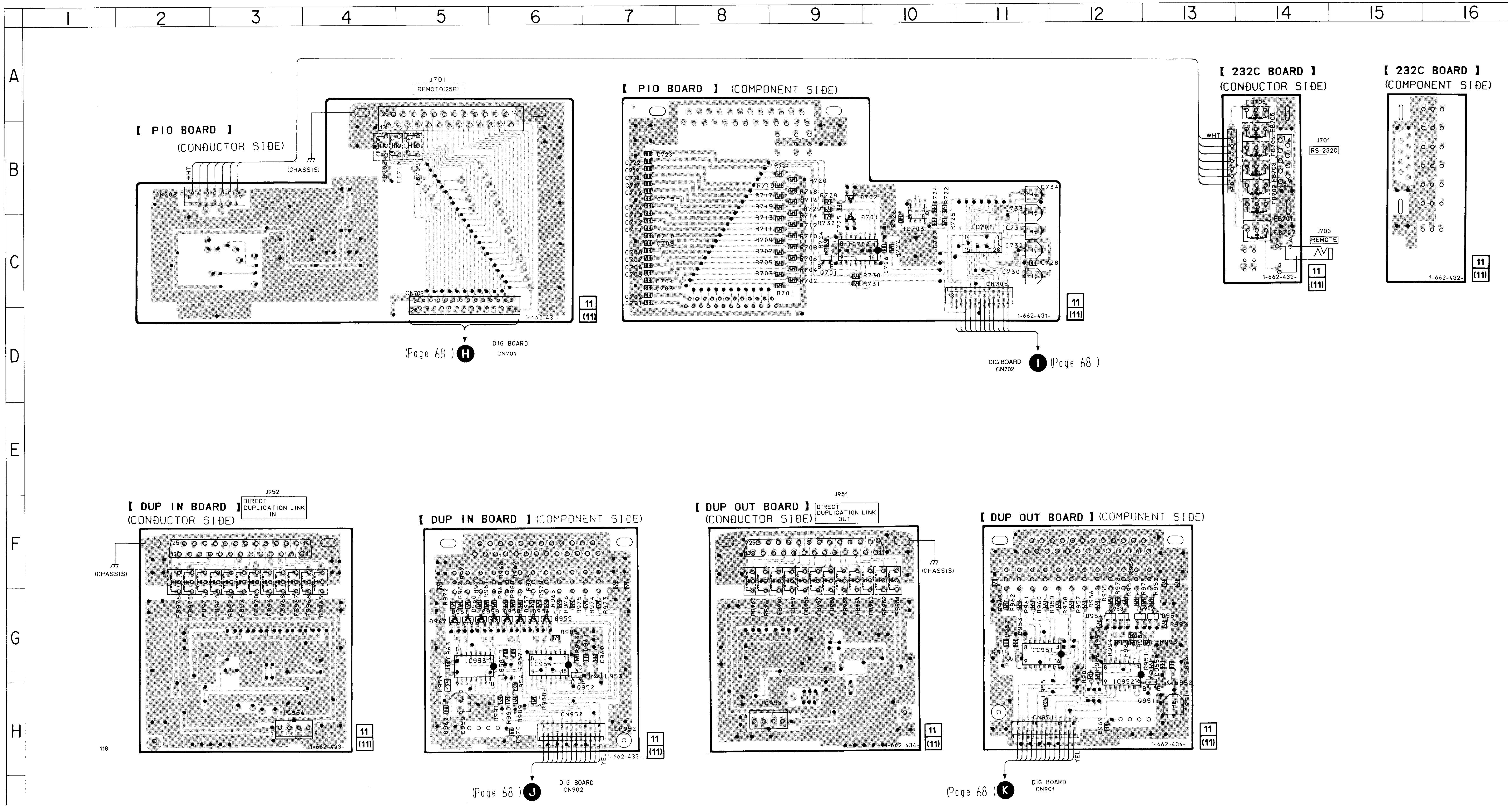


5-7. PRINTED WIRING BOARD — ETC SECTION —

• See page 44 for Circuit Boards Location.

• Semiconductor Location

Ref. No.	Location
D701	C-9
D702	B-9
D951	G-13
D952	G-12
D953	G-12
D954	G-12
D955	G-6
D956	G-6
D957	G-6
D958	G-6
D959	G-6
D960	G-5
D961	G-5
D962	G-5
IC701	C-11
IC702	C-9
IC703	C-10
IC951	G-11
IC952	H-12
IC953	G-5
IC954	G-6
IC955	H-9
IC956	H-3
Q701	C-9
Q951	H-13
Q952	H-6


Note:

- o—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ● : Through hole.
- ░ : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)

5-8. SCHEMATIC DIAGRAM — ETC SECTION —

• See page 100 for IC Block Diagrams.



NOTE


- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- ▭ :panel designation.
- [B+] :B+ Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.

no mark:PLAY
(   ) :STOP
<   >:REC
* :can not be measured.

- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

- Signal path.
  ⊃ :PB
  ⊃⊃ :REC

5-9. SCHEMATIC DIAGRAM — AUDIO/POWER SECTION — • See page 100 for IC Block Diagrams.



NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- ▭ : panel designation.

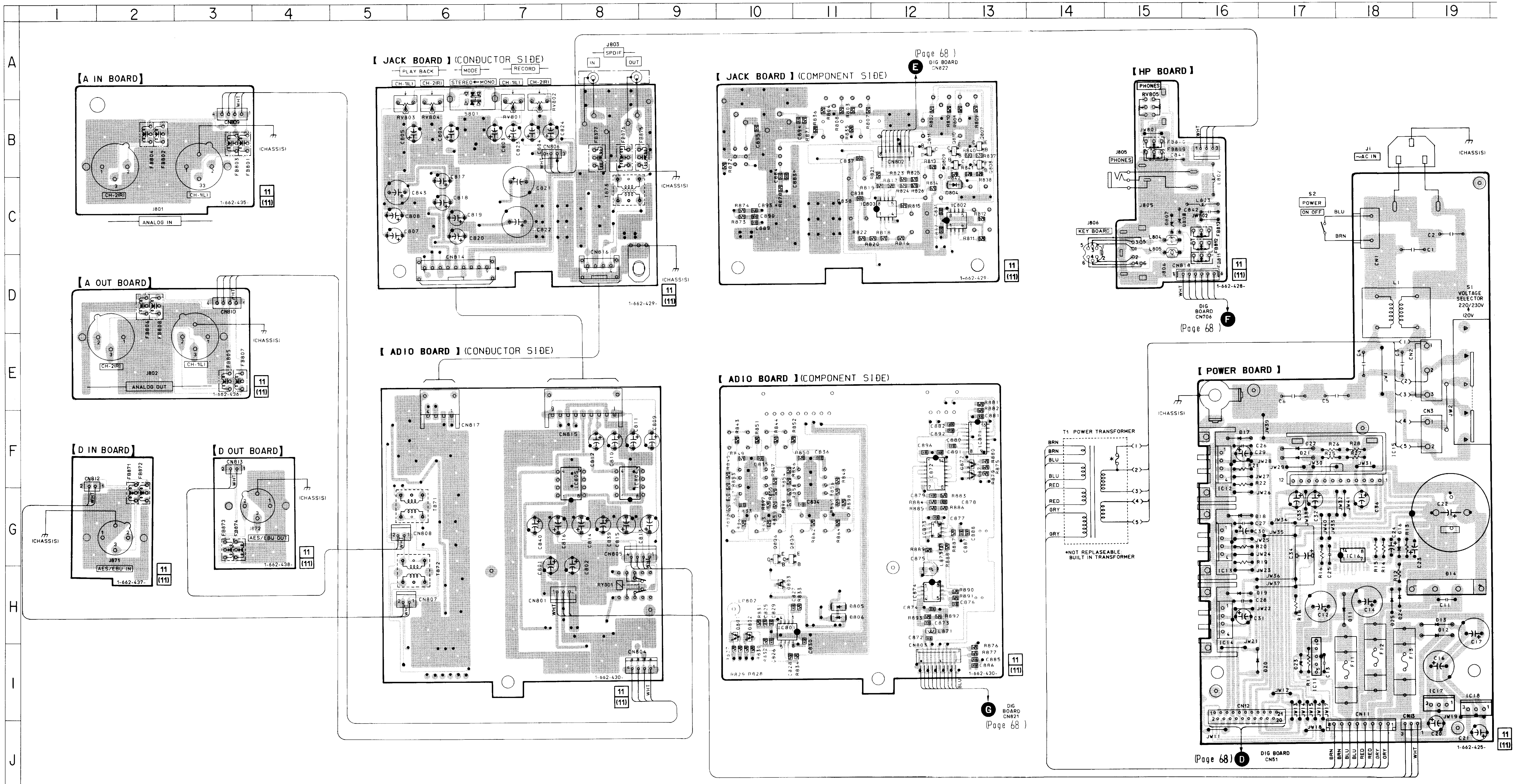
Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiès par une marque ⚠ sont critiques pour la sècuritè. Ne les remplacer que par une pièce portant le numèro spècifiè.

- B+ : B+ Line.
- B- : B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: PLAY
  ( ) : STOP
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Abbreviation
  CND: Canadian model.

- Signal path.
  - : PB
  - : REC
  - : PB (Digital out)
  - : REC (Digital in)

5-10. PRINTED WIRING BOARD — AUDIO/POWER SECTION —

• See page 44 for Circuit Boards Location.



• **Semiconductor Location**

Ref. No.	Location
D11	H-18
D12	H-19
D13	H-19
D14	H-19
D16	G-18
D17	F-16
D18	G-16
D19	H-16
D20	I-16
D21	F-17
D22	F-17
D23	I-17
D24	H-18
D25	H-18
D801	H-10
D802	H-10
D803	H-10
D804	C-13
D805	H-11
D806	H-11
D807	C-15
D808	C-15
D871	F-13
D872	F-13
IC11	I-17
IC12	F-16
IC13	G-16
IC14	H-16
IC15	F-17
IC16	G-18
IC17	I-19
IC18	I-19
IC801	H-10
IC802	C-13
IC803	C-12
IC804	F-8
IC805	F-8
IC871	F-13
IC872	F-12
IC873	G-12
IC874	H-12
Q805	G-10
Q806	G-10
Q807	B-13
Q808	B-13
Q809	B-13
Q810	B-13
Q811	B-12

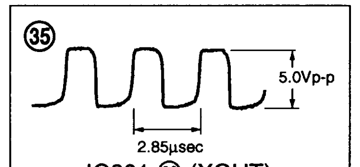
Note:

- o—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ● : Through hole.
- ▒ : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)

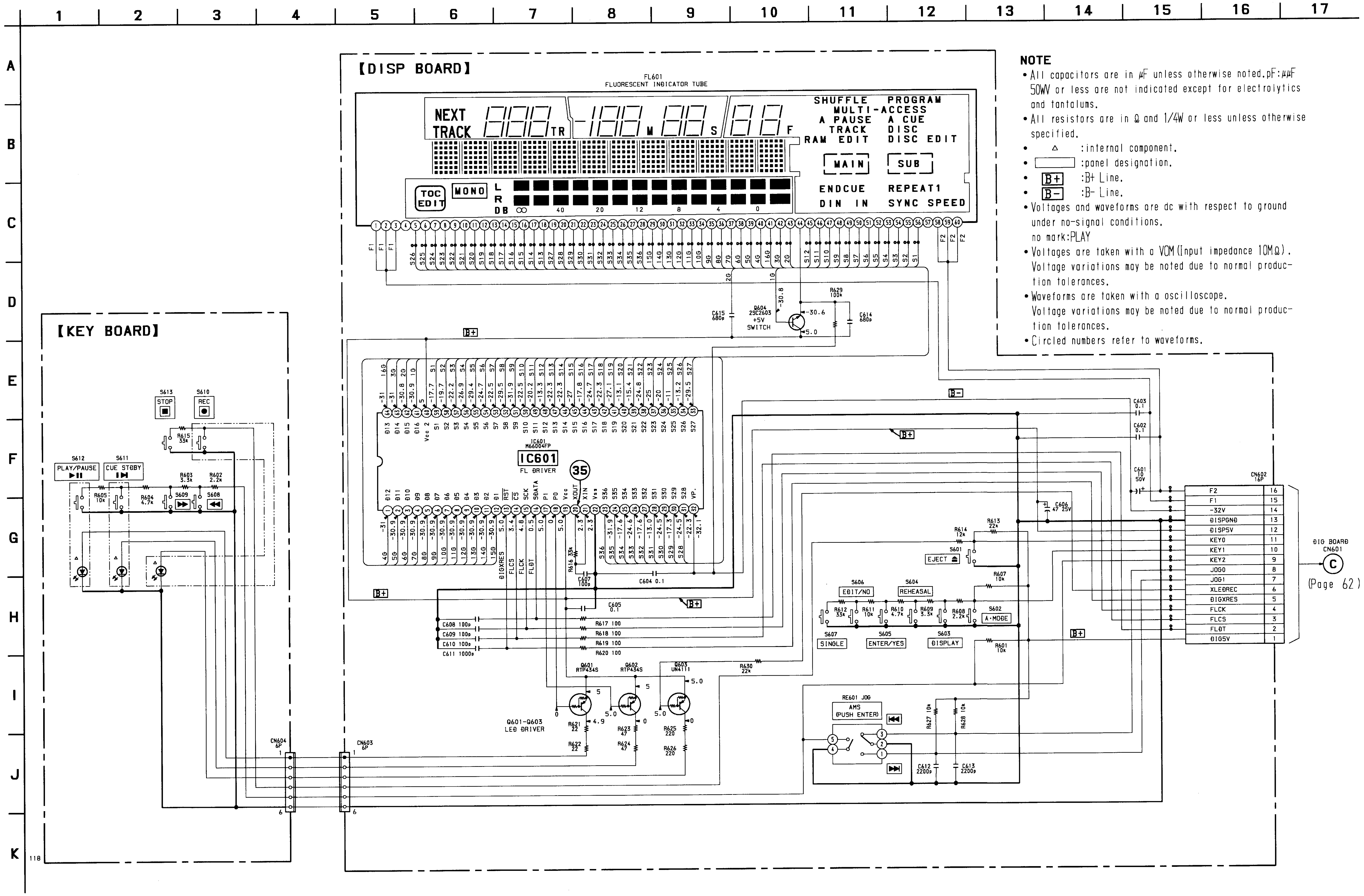
5-11. SCHEMATIC DIAGRAM — DISPLAY SECTION —

• See page 100 for IC Block Diagrams.

• Waveform



IC601 ⑳ (XOUT)

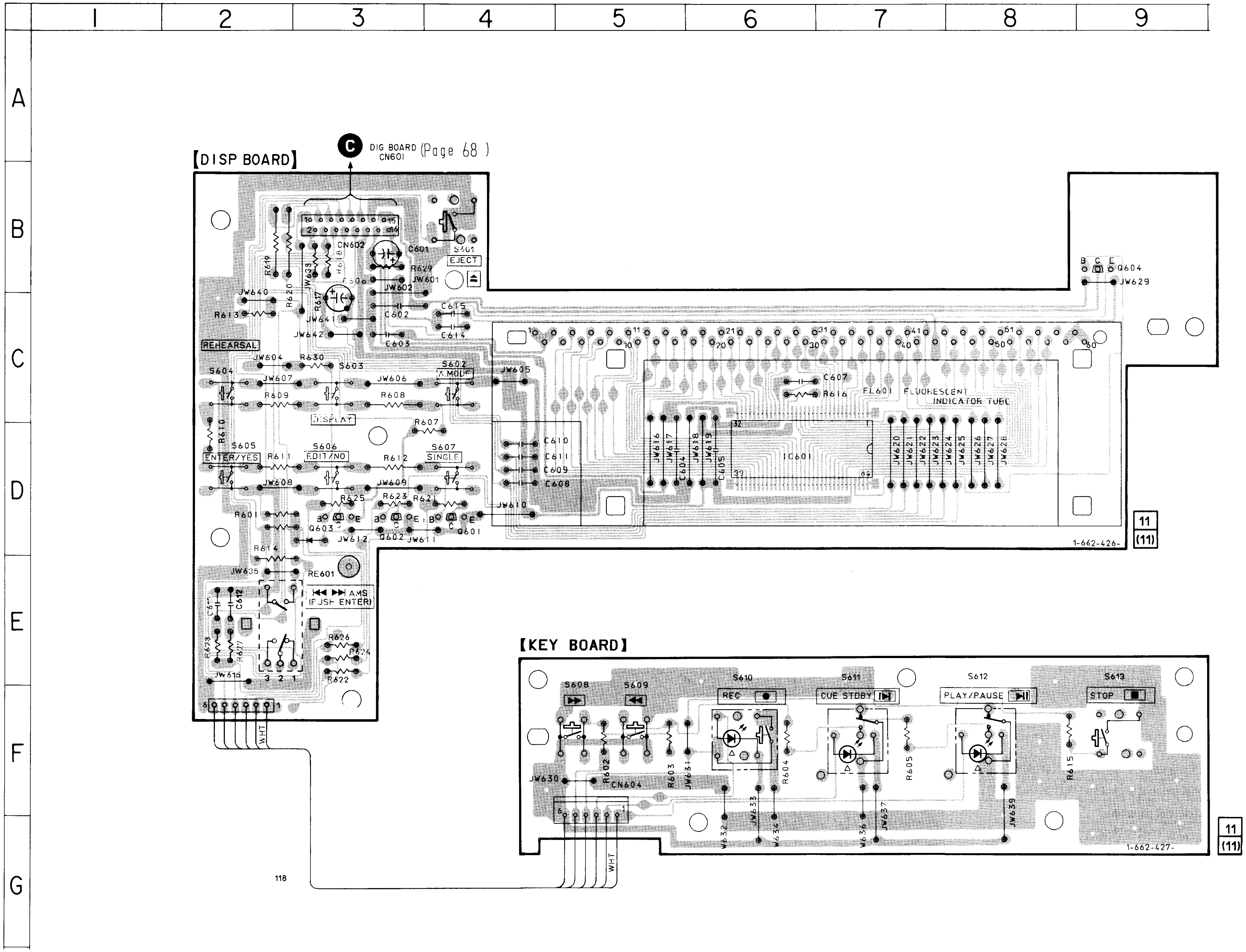


NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.
- [B+] : B+ Line.
- [B−] : B− Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: PLAY
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.

5-12. PRINTED WIRING BOARD — DISPLAY SECTION —

• See page 44 for Circuit Boards Location.



• **Semiconductor Location**

Ref. No.	Location
IC601	D-6
Q601	D-4
Q602	D-3
Q603	D-3
Q604	B-9

Note:
- ○—— : parts extracted from the component side.
- Δ : Internal component.
- ▒ : Pattern from the side which enable seeing.

5-13. IC PIN FUNCTIONS

• IC101 RF Amplifier (CXA1981AR)

Pin No.	Pin Name	I/O	Function
1	VC	O	Middle point voltage (2.5V) generation output
2 to 7	A to F	I	Input of signal from optical block detector
8	FI	I	F operation amplifier input
9	FO	O	F operation amplifier output
10	PD	I	Front monitor. Connected to photo diode
11	APCREF	I	Input pin for setting laser power
12	TEMPI	I	Temperature sensor connection input
13	GND	–	Ground
14	AAPC	O	APC LD amplifier output
15	DAPC	O	Not used
16	TEMPR	O	Temperature sensor reference voltage output
17	XRST	I	Input of reset signal from Q403. Reset: “L”
18	SWDT	I	Input of write data signal from system controller (IC301)
19	SCLK	I	Input of clock signal from system controller (IC301)
20	XLAT	I	Input of latch signal from system controller (IC301)
21	VREF	O	Reference voltage output (Not used)
22	TENV	O	Not used
23	THLD	I	Not used (Connected to VC)
24	VCC	–	Power supply (+5V)
25	TFIL	I	Not used
26	TE	O	Output of tracking error signal to CXD2535CR (IC121)
27	TLB	I	Input of add signal to tracking error
28	CSLED	I	Sled error LPF input
29	SE	O	Output of sled error signal to CXD2535CR (IC121)
30	ADFM	O	ADIP FM signal output
31	ADIN	I	Inputs ADIP FM signal by AC coupling
32	ADAGC	I	Connection of external capacitor for ADIP AGC
33	ADFG	O	Output of ADIP dual FM signal to CXD2535CR (IC121) (22.05 kHz±1 kHz)
34	AUX	O	Output of auxiliary signal to CXD2535CR (IC121)
35	FE	O	Output of focus error signal to CXD2535CR (IC121)
36	FLB	I	Not used
37	ABCD	O	Output of light amount signal to CXD2535CR (IC121)
38	BOTM	O	Output of bottom hold signal of light amount signal to CXD2535CR (IC121)
39	PEAK	O	Output of peak hold signal of light amount signal to CXD2535CR (IC121)
40	RFAGC	I	Connection of RF AGC circuit external capacitor
41	RF	O	Output of playback EFM RF signal to CXD2535CR (IC121)
42	ISET	I	Internal circuit constant setting input. 22 kHz BPF center frequency
43	AGCT	I	Inputs RF signal by AC coupling
44	RFO	O	Output of RF signal
45	MORFI	I	Inputs MO RF signal by AC coupling
46	MORFO	O	Output of MO RF signal
47, 48	I, J	I	Input of signal from optical block detector

• IC121 Digital signal procesor, digital servo processor, EFM/ACIRC encoder/decoder (CXD2535CR)

Pin No.	Pin Name	I/O	Function
1	FS256	O	11.2896 MHz clock output (MCLK) (Not used)
2	FOK	O	Output of FOK signal to system controller (IC301) Outputs “H” when focus is set
3	DFCT	O	Outputs defect ON/OFF switching signal (Not used)
4	SHCK	O	Outputs track jump detection signal to system controller (IC301)
5	SHCKEN	I	Track jump detection enable input (Fixed at “H”)
6	WRPWR	I	Inputs laser power switching signal from system controller (IC301)
7	DIRC	I	Not used (Fixed at “H”)
8	SWDT	I	Inputs write data signal from system controller (IC301)
9	SCLK	I	Inputs serial clock signal from system controller (IC301)
10	XLAT	I	Inputs serial latch signal from system controller (IC301)
11	SRDT	O	Outputs write data signal to system controller (IC301)
12	SENS	O(3)	Outputs internal status (SENSE) to system controller (IC301)
13	ADSY	O	ADIP sync signal output (Not used)
14	SQSY	O	Output subcode Q sync (SCOR) to system controller (IC301) Outputs “L” every 13.3 msec. Outputs “H” at all most mostly
15	DQSY	O	Outputs digital-in U-bit CD format subcode Q sync (SCOR) to system controller (IC301). Outputs “L” every 13.3 msec Outputs “H” at all most mostly
16	XRST	I	Inputs reset signal from Q403. Reset: “L”
17	TEST4	I	Test input (Fixed at “L”)
18	CLVSCK	O	Not used
19	TEST5	I	Test input (Fixed at “L”)
20	DOUT	O	Digital audio signal output
21	DIN	I	Digital audio signal input
22	FMCK	O	ADIP FM demodulation clock signal output
23	ADER	O	ADIP CRC flag output. “H”:Error
24	REC	I	Input of recording/playback switching signal from system controller (IC301) Recording: “H”. Playback: “L”
25	DVSS	–	Ground (Digital)
26	DOVF	I	Digital audio output validity flag input (Fixed at “L”)
27	DODT	I	Input of data for digital audio output from CXD8633Q (IC901)
28	DIDT	O	Output of data for digital audio input
29	DTI	I	Input of recording audio data signal from CXD2536CR (IC401)
30	DTO	O(3)	Output of playback audio data signal to CXD2536CR (IC401)
31	C2PO	O	Outputs C2PO signal to CXD2536CR (IC401) (Output indicating data error status) Playback: C2PO (“H”). Digital recording: D.In-Vflag. Analog recording: “L”
32	BCK	O	Outputs bit clock signal (2.8224 MHz) to CXD2536CR (IC401) (MCLK)
33	LRCK	O	Outputs L/R clock signal (44.1 kHz) to CXD2536CR (IC401) (MCLK)
34	XTAO	O	For crystal
35	XTAI	I	Input of system clock (512fs) for crystal
36	MCLK	O	MCLK clock (22.5792 MHz) signal output (Not used)
37	XBCK	O	Pin 32 (BCK) inversion output (Not used)
38	DVDD	–	Power supply (+5V) (Digital)
39	WDCK	O	WDCK clock (88.2 kHz) signal output (MCL) (Not used)
40	RFCK	O	RFCK clock (7.35 kHz) signal output (MCLK) (Not used)

Pin No.	Pin Name	I/O	Function
41	WFCK	O	WFCK clock (7.35 kHz) signal output (Playback: EFM decoder PLL. Recording: EFM encoder PLL) (Not used)
42	GTOP	O	“H”: Opens playback EFM frame sync protection window (Not used)
43	GFS	O	“H”: Playback EFM sync and interpolation protection timing match (Not used)
44	XPLCK	O	EFM decoder PLL clock output (98 fs=4.3218 MHz) Falling edge and EFM signal edge match (Not used)
45	EFMO	O	EFM signal output (Recording)
46	RAOF	O	Internal RAM overflow detection signal output (decoder monitor output) Outputs “H” when the disc rotation exceeds ±4F jitter margin during playback (Not used)
47	MVCI	I	Digital-in PLL oscillation input (Fixed at “L”)
48	TEST2	I	Test pin (Fixed at “L”)
49	DIPD	O(3)	Digital-in PLL phase comparison output Internal VCO: (Frequency: Lown“H”). External VCO: (Frequency: Lown“L”) (Not used)
50	DVSS	–	Ground (Digital)
51	DICV	I(A)	Digital-in PLL internal VCO control voltage input
52	DIFI	I(A)	Filter input when digital-in PLL internal VCO is used
53	DIFO	O(A)	Filter output when digital-in PLL internal VCO is used (Not used)
54	AVDD	–	Power supply (+5V) (Analog)
55	ASYO	O	Playback EFM full-swing output (L=VSS, H=VDD)
56	ASYI	I(A)	Playback EFM asymmetry comparate voltage input
57	BIAS	I(A)	Playback EFM asymmetry circuit constant current input
58	RFI	I(A)	Inputs playback EFM RF signal from CXA1981AR (IC101)
59	AVSS	–	Ground (Analog)
60	CLTV	I(A)	Decoder PLL master clock PLL VCO control voltage input
61	PCO	O(3)	Decoder PLL master clock PLL phase comparison output
62	FILI	I(A)	Decoder PLL master clock PLL filter input
63	FILO	O(3)	Decoder PLL master clock PLL filter output
64	PEAK	I(A)	Inputs peak hold signal for light amount signal from CXA1981AR (IC101)
65	BOTM	I(A)	Inputs bottom hold signal for light amount signal from CXA1981AR (IC101)
66	ABCD	I(A)	Light amount signal from CXA1981AR (IC101)
67	FE	I(A)	Input of focus error signal from CXA1981AR (IC101)
68	AUX1	I(A)	Input of auxiliary signal from CXA1981AR (IC101)
69	VC	I(A)	Input of middle point voltage (+2.5V) from CXA1981AR (IC101)
70	ADIO	O(A)	A/D converter input signal monitor output (Not used)
71	TEST3	I(A)	Test input (Fixed at “L”)
72	AVDD	–	Power supply (+5V) (Analog)
73	ADRT	I(A)	A/D converter operation range upper limit voltage input (Fixed at “H”)
74	ADRB	I(A)	A/D converter operation range lower limit voltage input (Fixed at “L”)
75	AVSS	–	Ground (Analog)
76	SE	I(A)	Input of sled error signal from CXA1981AR (IC101)
77	TE	I(A)	Input of tracking error signal from CXD1981AR (IC101)
78	AUX2	I(A)	Auxiliary input 2 (Fixed at “L”)
79	DCHG	I(A)	Connected to GND
80	APC	I(A)	Laser APC input (Fixed at “L”)

Pin No.	Pin Name	I/O	Function
81	TEST1	I	Test pin (Fixed at “L”)
82	ADFG	I	Input of ADIP dual FM signal from CXA1981AR (IC101) (22.05 kHz ±1 kHz) (TTL Schmidt input)
83	TS25	I	Test pin (Fixed at “L”)
84	LDDR	O	Laser APC signal output
85	TRDR	O	Tracking servo drive signal output (–)
86	TFDR	O	Tracking servo drive signal output (+)
87	FFDR	O	Focus servo drive signal output (+)
88	DVDD	–	Power supply (+5V) (Digital)
89	FRDR	O	Focus servo drive signal output (–)
90	FS4	O	176.4 kHz clock signal output (MCLK)
91	SRDR	O	Sled servo drive signal output (–)
92	SFDR	O	Sled servo drive signal output (+)
93	SPRD	O	Spindle servo drive signal output (–)
94	SPFD	O	Spindle servo drive signal output (+)
95	DCLO	O	Not used
96	DCLI	I	Not used (Fixed at “H”)
97	XDCL	O	Not used
98	OFTRK	O	Off track signal output (Not used)
99	COUT	O	Traverse count signal output (Not used)
100	DVSS	–	Ground (Digital)

* (3) of I/O is 3-state output, (A) is analog output.

• IC301 System Control (M30600E8FP)

Pin No.	Pin Name	I/O	Function
1	SHCK	I	Jog detection input from the CXD2535CR.
2	FOR	I	Focus OK input from the CXD2535CR.
3	C1	O	C1 error test output
4	ADER, C2	O	ADER, C2 error test output
5	SQSY	I	SUBQ/ATIP sync input from the CXD2535CR.
6	SIRCS	I	Wired remote control input
7	PDOWN	I	Power down detection input
8	BYTE	I	External data bus width switching input (Fixed to “L”.)
9	CNVSS	I	Processor mode switching input (Fixed to “L”.)
10	SCTX	O	CXD2536CR recording data output timing and magnetic head control output
11	FG	I	FG input from the spindle motor.
12	XREST	I	Reset input
13	XOUT	O	Clock output (8.6 MHz)
14	GND	–	Ground (0V)
15	XIN	I	Clock input (8.6 MHz)
16	VCC	–	Power supply (+5V)
17	NMI	I	NMI input (Fixed to “H”.)
18	232XINT	I	IC for RS232C. Interrupt request input from the M66230FP.
19	KBCK	I	Keyboard communication clock input
20	DQSY	I	DIN SUBQ sync input from the digital-in receiver LC89051V (IC410).
21	XINT2	I	Interrupt request input from the high-speed dubbing CXD2536CR (IC407).
22	XINT1	I	Interrupt request input from the CXD2536CR (IC401).
23	REC	O	Encode/decode mode switching output to the CXD2535CR.
24	ERROR	I	Unlock detection input from the digital-in receiver LC89051V.
25	——	I	Not used.
26	XLAT2	O	Command latch output to the high-speed dubbing CXD2536CR (IC407).
27	XLAT1	O	Command latch output to CXD2536CR (IC401), CXD2535CR, LC89051V, CXD8517Q.
28	DALAT	O	Command latch output to the audio D/A converter CXD8567AM.
29	FLCS	O	Chip select output to the FL tube display driver.
30	CE	O	Chip select output to the variable pitch controller LC72130M.
31	SWDT	O	Serial bus write data output
32	SRDT	I	Serial bus read data input
33	SCLK	O	Serial bus clock output
34	DSR	I	RS232C DSR input
35	TXD	O	Write data output to the FL tube display driver and the variable pitch controller.
36	RXD	I	Read data input from the variable pitch controller.
37	CLK	O	Clock output to the FL tube display driver and the variable pitch controller.
38	KBDATA	I	Keyboard communication data input
39	XRDY	I	External data bus ready input (Fixed to “H”.)
40	ALE	O	External data bus address latch enable output

Pin No.	Pin Name	I/O	Function
41	XHOLD	I	External data bus hold input (Fixed to “H”.)
42	XHLDA	O	External data bus hold output
43	BCLK	O	Internal clock output (4.3 MHz)
44	XRD	O	External data bus read request output
45	XWRH	O	External data bus odd address write request output
46	XWRL	O	External data bus even address write request output
47	XCS3	O	Chip select output for the external data bus I/O expander M66500FP (IC304, 306)
48	XCS2	O	Chip select output for the external data bus external SRAM (IC303, 312)
49	XCS1	O	Chip select output for the external data bus flash memory AT29C1024 (IC302)
50	XCS0	O	Chip select output for the external data bus RS232C M66230FP (IC313).
51 to 61	A19 to A9	O	External data bus address output
62	VCC	–	Power supply (+5V)
63	A8	O	External data bus address output
64	GND	–	Ground (0V)
65 to 72	A7 to A0	O	External data bus address output
73 to 88	D15 to D0	I/O	External data bus address input/output
89 to 91	KEY0 to KEEY2	I	Key input
92, 93	JOG0, JOG1	I	Jog input
94	SENS	I	SENS status input from the CXD2535CR.
95	SCL	O	Clock output for the non-volatile ROM.
96	AGND	I	Analog ground input for the A/D conversion circuit (0V).
97	SDA	I/O	Data input/output for the non-volatile ROM.
98	VREF	I	Reference voltage input for the A/D conversion circuit (+5V).
99	AVCC	I	Analog power supply input for the A/D conversion circuit (+5V).
100	WRPWR	O	Laser light power request output for the CXD2535CR.

• IC401 Shock-Proof Memory Controller, ATRAC Encoder/Decoder (CXD2536CR)

Pin No.	Pin Name	I/O	Function
1	VDD	—	Power supply (+5V)
2	SWDT	I	Input of write data signal from system controller (IC301)
3	SCK	I	Input of serial clock signal from system controller (IC301)
4	XLAT	I	Input of serial latch signal from system controller (IC301)
5	SRDT	O/Z	Output of read data signal to system controller (IC301)
6	SENSE	O/Z	Output of internal status (SENSE) to system controller (IC301)
7	SCMD0	I	Input of serial command control mode (Fixed at "H")
8	SCMD1	I	
9	XINT	O	Output of interrupt status to system controller (IC301)
10	RCPB	I	Recording/playback switching input (Fixed at "L")
11	WRMN	I	Input of write/monitor mode switching signal (Fixed at "L")
12	TX	I	Input of write data transmission timing from system controller (IC301) Also used as magnetic field head ON/OFF output
13	VSS	—	Ground
14	SICK	I	Chip reservation (Fixed at "L")
15	IDSL	I	
16	XILT	I	Chip reservation (Fixed at "H")
17	XRST	I	Input of reset signal from Q402. Reset: "L"
18 to 21	TS0 to TS3	I	Test pin (Fixed at "L")
22	EXIR	I	Chip reservation (Fixed at "L")
23	SASL	I	Block selection in single use. "L": ATRAC. "H": RAM controller (Fixed at "L")
24	SNGLE	I	Normally fixed at "L. Fixed at "H" when used as ATRAC or RAM controller for single (Fixed at "L")
25	VSS	—	Ground
26	AIRCPB	O	Output of ATRAC and external audio block recording/playback mode signal (Not used)
27	XRQ	I/O	ATRAC I/F XRQ signal input/output (Not used)
28	ADTO	I/O	ATRAC decode data signal input/output (Not used)
29	ADTI	I/O	ATRAC encode data signal input/output (Not used)
30	XALT	I/O	ATRAC I/F XALT signal input/output (Not used)
31	ACK	I/O	ATRAC I/F ACK signal input/output (Not used)
32	AC2	I/O	ATRAC I/F error data signal input/output (Not used)
33	LCHST	I/O	ATRAC I/F Lch start data signal input/output (Not used)
34	EXE	I/O	ATRAC I/F EXE signal input/output (Not used)
35	MUTE	I/O	ATRAC I/F MUTE signal input/output (Not used)
36	OSCO	O	Clock output (1024fs) (Not used)
37	OSCI	I	Clock input from vari-pitch circuit (1024fs)
38	VSS	—	Ground
39	ATT	I/O	ATRAC I/F ATT signal input/output (Not used)
40	F86	O	ATRAC block 11.6 msec timing signal output (Not used)
41	DOUT	O	Output of monitor/decode audio data signal to D/A converter (IC503)
42	ADIN	I	Input of recording signal from A/D converter (IC501)
43	ABCK	O	Output of bit clock signal to A/D and D/A converters (IC501, 503)
44	ALRCK	O	Output of L/R clock to A/D and D/A converters (IC501, 503)
45 to 47	SA2 to SA0	O	Address signal output (Not used)

Pin No.	Pin Name	I/O	Function
48, 49	A11, A10	O	Output of address signal to RAM (IC402)
50	VSS	—	Ground
51	VDD	—	Power supply (+5V)
52 to 55	A03 to A00	O	Output of address signal to RAM (IC402)
56 to 60	A04 to A08	O	Output of address signal to RAM (IC402)
61	XOE	O	Output of output enable control signal to RAM (IC402)
62	XCAS	O	Output of column address strobe signal to RAM (IC402)
63	VSS	—	Ground
64	XCS	O	Output of chip select signal to RAM (IC402) (Not used)
65	A09	O	Output of address signal to RAM (IC402)
66	XRAS	O	Output of row address strobe signal to RAM (IC402)
67	XWE	O	Output of read/write control signal to RAM (IC402)
68, 69	D1, D0	I/O	Input/output of data signal to/from RAM (IC402)
70, 71	D2, D3	I/O	
72 to 74	D4 to D6	I/O	Data signal input/output (Not used)
75	VSS	—	Ground
76	D7	I/O	Data signal input/output (Not used)
77	ERR	I/O	Input/output of error (C2PO) data to external RAM (Not used)
78	EXTC2R	I	External RAM selection input for error data writing (“H”: External RAM) (Fixed at “L”)
79	BUSY	O	RAM access BUSY signal output (Not used)
80	EMP	O	EMPTY or immediately before FULL of ATRAC data (When DSC=ASC+1: “H”) (Not used)
81	FUL	O	FULL or immediately before EMPTY of ATRAC data (When ASC=DSC+1: “H”) (Not used)
82	EQL	O	ATRAC data EMPTY (When DSC=ASC: “H”) (Not used)
82	MDLK	O	Indicates recording/playback data main/sub (“H”: Sub, Linking: “L”: Main) (Not used)
84	CPSY	O	Interpolation sync signal output (Not used)
85	CTMD0	O	DSC counter mode output (Not used)
86	CTMD1	O	
87	SPO	O	System clock 512fs signal output
88	VSS	—	Ground
89	MDSY	O	Main data sync detection signal output (Not used)
90	LRCK	I	Input of L/R clock signal from CXD2535CR (IC121) (44.1 kHz)
91	BCK	I	Input of bit clock signal from CXD2535CR (IC121) (2.8224 MHz)
92	C2PO	I	Input of C2PO signal from CXD2535CR (IC121) (Shows data error status) Playback:C2PO (“H”). Digital recording: D.In-Vflag. Analog recording: “L”
93	DATA	I/O	Recording:Output of recording audio data signal to CXD2535CR (IC121) Playback:Input of playback audio data signal from CXD2535CR (IC121)
94	DIDT	I	Input of digital audio input data from CXD2535CR (IC121)
95	DODT	O	Output of digital audio output data to CXD2535CR (IC121)
96	DIRCPB	O	Disc drive and EFM encoder/decoder recording/playback mode output (Not used)
97	MIN	I	Input of defect ON/OFF switching signal
98	SPOSL	I	Pin 87 (SPO) input/output switching input (“L”:IN. “H”:OUT) (Fixed at “H”)
99	MCK	O	RAM controller internal master clock output (Not used)
100	VSS	—	Ground

• IC407 Shock-Proof Memory Controller, ATRAC Encoder/Decoder (CXD2536CR)

Pin No.	Pin Name	I/O	Function
1	VDD	—	Power supply (+5V)
2	SWDT	I	Input of write data signal from system controller (IC301)
3	SCK	I	Input of serial clock signal from system controller (IC301)
4	XLAT	I	Input of serial latch signal from system controller (IC301)
5	SRDT	O/Z	Output of read data signal to system controller (IC301)
6	SENSE	O/Z	Output of internal status (SENSE) to system controller (IC301) (Not used)
7	SCMD0	I	Input of serial command control mode (Fixed at “H”)
8	SCMD1	I	
9	XINT	O	Output of interrupt status to system controller (IC301)
10	RCPB	I	Recording/playback switching input (Fixed at “L”)
11	WRMN	I	Input of write/monitor mode switching signal (Fixed at “L”)
12	TX	I	Input of write data transmission timing from system controller (IC301) Also used as magnetic field head ON/OFF output
13	VSS	—	Ground
14	SICK	I	Chip reservation (Fixed at “L”)
15	IDSL	I	
16	XILT	I	Chip reservation (Fixed at “H”)
17	XRST	I	Input of reset signal from Q403. Reset: “L”
18 to 21	TS0 to TS3	I	Test pin (Fixed at “L”)
22	EXIR	I	Chip reservation (Fixed at “L”)
23	SASL	I	Block selection in single use. “L”: ATRAC. “H”: RAM controller (Fixed at “H”)
24	SNGLE	I	Normally fixed at “L. Fixed at “H” when used as ATRAC or RAM controller for single (Fixed at “H”)
25	VSS	—	Ground
26	AIRCPB	O	Output of ATRAC and external audio block recording/playback mode signal
27	XRQ	I/O	ATRAC I/F XRQ signal input/output
28	ADTO	I/O	ATRAC decode data signal input/output
29	ADTI	I/O	ATRAC encode data signal input/output
30	XALT	I/O	ATRAC I/F XALT signal input/output
31	ACK	I/O	ATRAC I/F ACK signal input/output
32	AC2	I/O	ATRAC I/F error data signal input/output (Not used)
33	LCHST	I/O	ATRAC I/F Lch start data signal input/output (Not used)
34	EXE	I/O	ATRAC I/F EXE signal input/output (Not used)
35	MUTE	I/O	ATRAC I/F MUTE signal input/output (Not used)
36	OSCO	O	Clock output (49.152 MHz) (Not used)
37	OSCI	I	Clock input (49.152 MHz) (Not used)
38	VSS	—	Ground
39	ATT	I/O	ATRAC I/F ATT signal input/output (Not used)
40	F86	O	ATRAC block 11.6 msec timing signal output (Not used)
41	DOUT	O	Output of monitor/decode audio data signal (Not used)
42	ADIN	I	Input of recording signal (Not used)
43	ABCK	O	Output of bit clock signal (Not used)
44	ALRCK	O	Output of L/R clock to A/D and D/A converters (Not used)
45 to 47	SA2 to SA0	O	

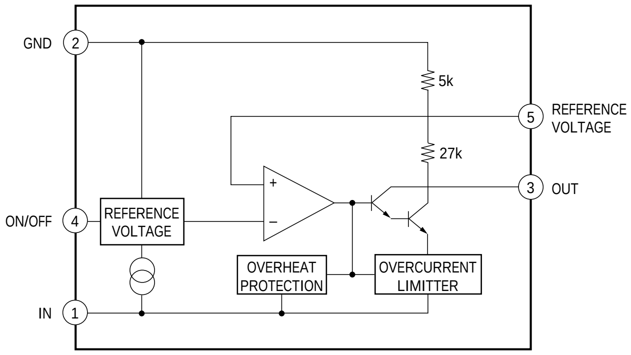
Pin No.	Pin Name	I/O	Function
48, 49	A11, A10	O	Address signal output (Not used)
50	VSS	—	Ground
51	VDD	—	Power supply (+5V)
52 to 55	A03 to A00	O	Output of address signal to RAM (IC408)
56 to 60	A04 to A08	O	Output of address signal to RAM (IC408)
61	XOE	O	Output of output enable control signal to RAM (IC408)
62	XCAS	O	Output of column address strobe signal to RAM (IC408)
63	VSS	—	Ground
64	XCS	O	Output of chip select signal to RAM (IC408) (Not used)
65	A09	O	Output of address signal to RAM (IC408)
66	XRAS	O	Output of row address strobe signal to RAM (IC408)
67	XWE	O	Output of read/write control signal to RAM (IC408)
68, 69	D1, D0	I/O	Input/output of data signal to/from RAM (IC408)
70, 71	D2, D3	I/O	
72 to 74	D4 to D6	I/O	Data signal input/output (Not used)
75	VSS	—	Ground
76	D7	I/O	Data signal input/output (Not used)
77	ERR	I/O	Input/output of error (C2PO) data to external RAM (Not used)
78	EXTC2R	I	External RAM selection input for error data writing (“H”: External RAM) (Fixed at “L”)
79	BUSY	O	RAM access BUSY signal output (Not used)
80	EMP	O	EMPTY or immediately before FULL of ATRAC data (When DSC=ASC+1: “H”) (Not used)
81	FUL	O	FULL or immediately before EMPTY of ATRAC data (When ASC=DSC+1: “H”) (Not used)
82	EQL	O	ATRAC data EMPTY (When DSC=ASC: “H”) (Not used)
83	MDLK	O	Indicates recording/playback data main/sub (“H”: Sub, Linking: “L”: Main) (Not used)
84	CPSY	O	Interpolation sync signal output (Not used)
85	CTMD0	O	DSC counter mode output (Not used)
86	CTMD1	O	
87	SPO	I	Input of system clock (512fs) signal from CXD2536CR (IC401)
88	VSS	—	Ground
89	MDSY	O	Main data sync detection signal output (Not used)
90	LRCK	I	Input of L/R clock signal from CXD2535CR (IC121) (44.1 kHz)
91	BCK	I	Input of bit clock signal from CXD2535CR (IC121) (2.8224 MHz)
92	C2PO	I	Input of C2PO signal from CXD2535CR (IC121) (Shows data error status) Playback:C2PO (“H”). Digital recording: D.In-Vflag. Analog recording: “L”
93	DATA	I/O	Recording:Output of recording audio data signal to CXD2535CR (IC121) Playback:Input of playback audio data signal from CXD2535CR (IC121)
94	DIDT	I	Input of digital audio input data (Not used)
95	DODT	O	Output of digital audio output data (Not used)
96	DIRCPB	O	Disc drive and EFM encoder/decoder recording/playback mode output (Not used)
97	MIN	I	Input of defect ON/OFF switching signal (Fixed at “L”)
98	SPOSL	I	Pin 87 (SPO) input/output switching input (“L”:IN. “H”:OUT) (Fixed at “L”)
99	MCK	O	RAM controller internal master clock output (Not used)
100	VSS	—	Ground

• **IC409 Sampling Rate Converter (CXD8517Q)**

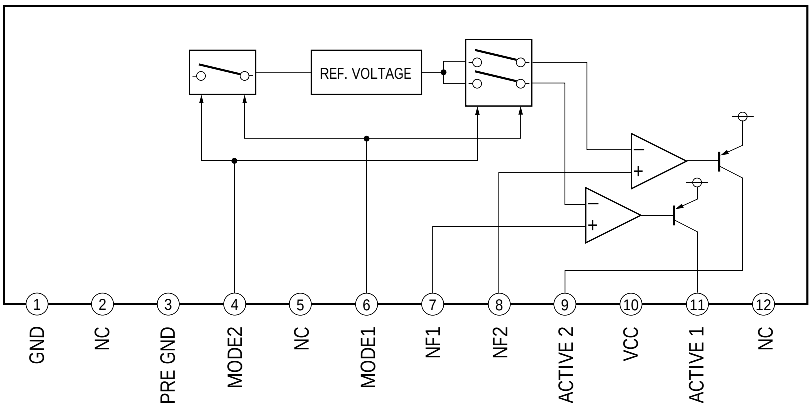
Pin No.	Pin Name	I/O	Function
1	DATAI	I	Data input
2	LRCKI	I	Input data fs word clock input (Schemidt)
3	BCKI	I	Input data bit clock input
4	MI0	I	Input data format setting input 0 (Fixed at “L”)
5	MI1	I	Input data format setting input 1 (Fixed at “L”)
6	VDD	—	+5V power supply
7	FI128	I	Input data fs reference clock input (512fs, 384fs, 256fs, 128fs)
8	MO0	I	Output data format setting input 0 (Fixed at “L”)
9	MO1	I	Output data format setting input 1 (Fixed at “L”)
10	INIT	I	Initializing input (Schmidt). “L”: Initializing, “H”: Normal operation
11	NC	—	Not used
12	GND	—	Ground
13	XI	I	Inverter input for oscillating the crystal oscillator (512fo master clock input)
14	XO	O	Inverter output for oscillating the crystal oscillator (Not used)
15	VDD	—	+5V power supply
16	XO2	O	Oscillation clock division output: 256fs (Not used)
17	GND	—	Ground
18	PASS	I	Input data through output mode setting input. “L”: Normal operation, “H”: Through (When through: Effective operation output only for deemphasis, attenuation) (Fixed at “L”)
19	FIS0	I	FI128 clock input division ratio setting input (Fixed at “L”)
20	FIS1	I	FI128 clock input division ratio setting input (Fixed at “L”)
21	TEST	O	Test input 0 (Not used)
22	NC	—	Not used
23	NC	—	
24	TEST1	I	Test input 1 (Fixed at “L”)
25	TEST2	I	Test input 2 (Fixed at “L”)
26	TEST3	I	Test input 3 (Fixed at “L”)
27	STA	O	fs conversion ratio measurement condition monitor output (Not used)
28	VDD	—	+5V power supply
29	NC	—	Not used
30	DATAO	O	Data output (fso output)
31	BCKO	I/O	Output data bit clock input/output
32	LRCKO	I/O	Output data fs word clock input/output
33	NC	—	Not used
34	NC	—	
35	MUTE	I	Data output mute setting input. “L”: Mute, “H”: Normal operation Synchronized with LRCK (“0" data only for DATAO output) (Fixed at “H”)
36	DEMP	I	Deemphasis setting input. “L”: OFF, “H”: ON (Fixed at “L”)
37	FS1	I	Deemphasis setting output fso frequency selection input 1 (Fixed at “L”)
38	FS2	I	Deemphasis setting output fso frequency selection input 2 (Fixed at “L”)
39	GND	—	Ground
40	XLAT	I	Attenuation, mode setting data latch pulse input
41	SCK	I	Attenuation, mode setting clock input
42	SWDT	I	Attenuation, mode setting data input
43	SLAVE	I	Sync mode selection. “L”: Slave, “H”: Master (Fixed at “L”)
44	NC	—	Not used

5-14. IC BLOCK DIAGRAMS

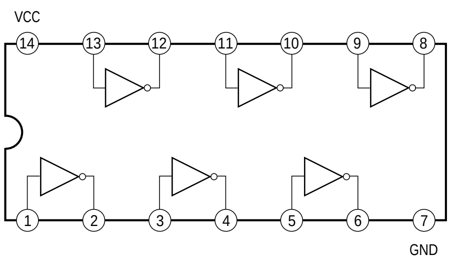
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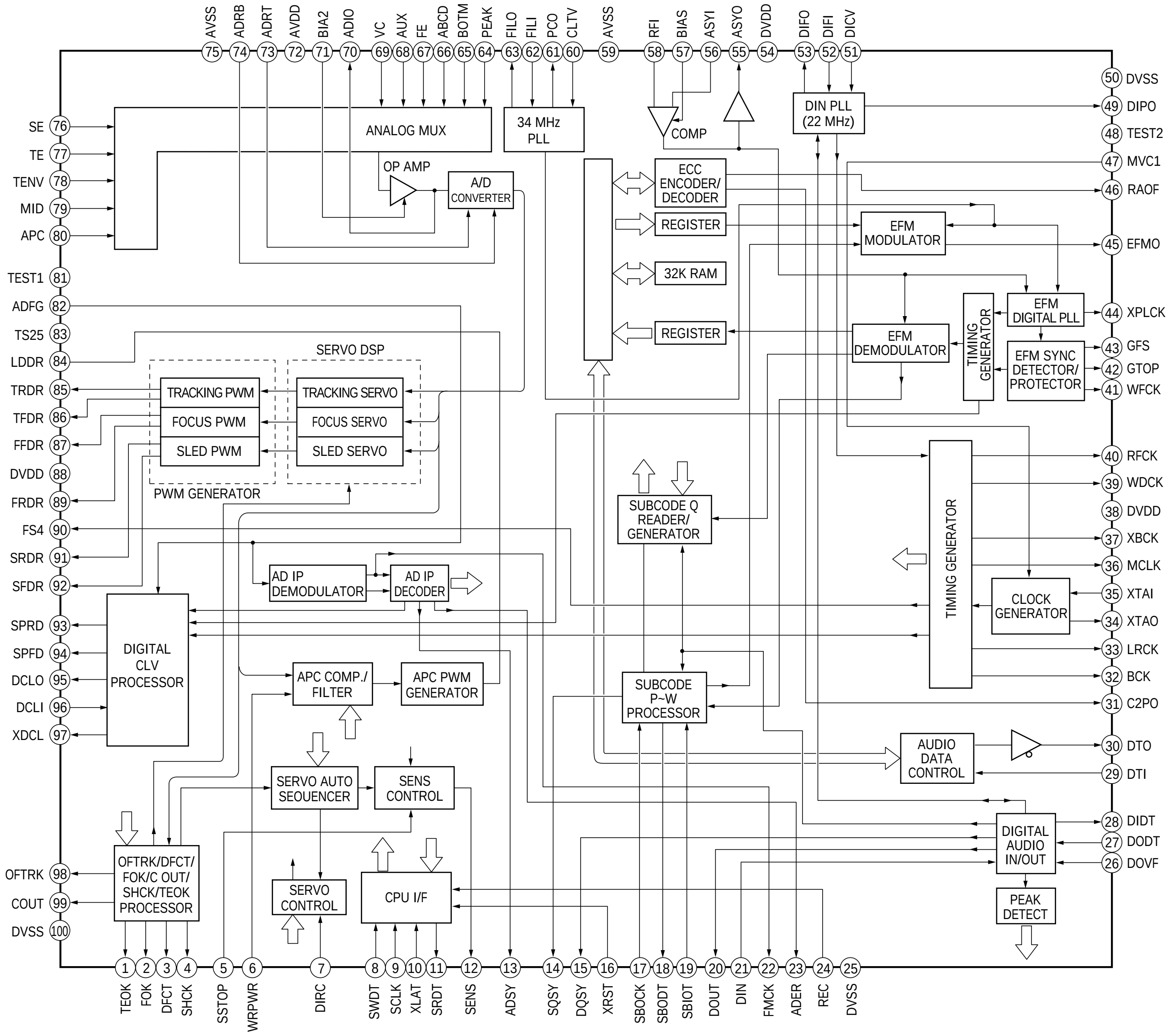
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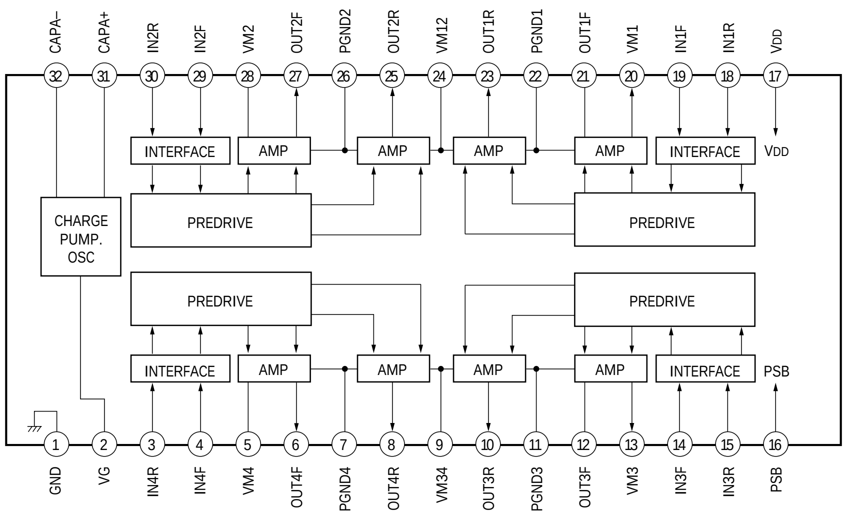
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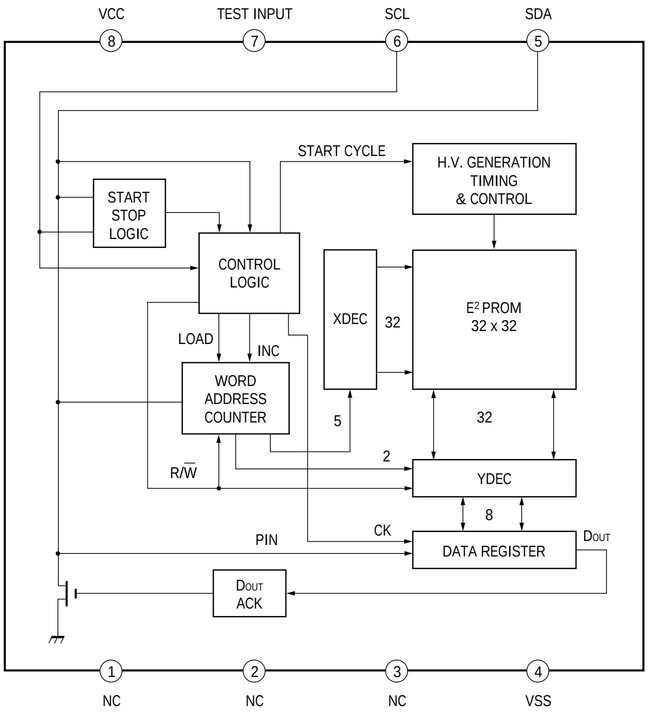
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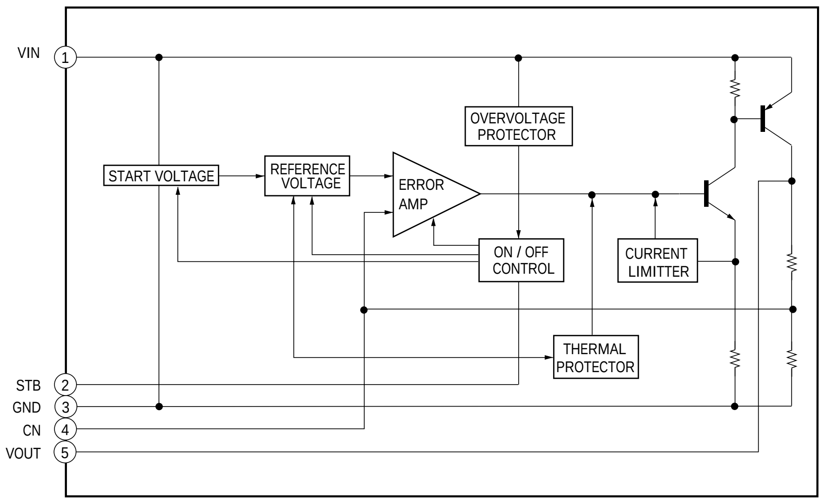
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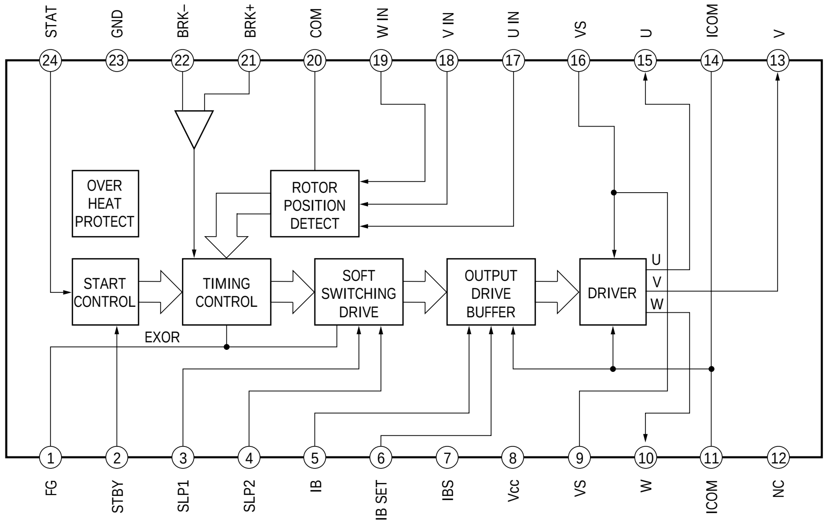
IC171 X24C08SC7000



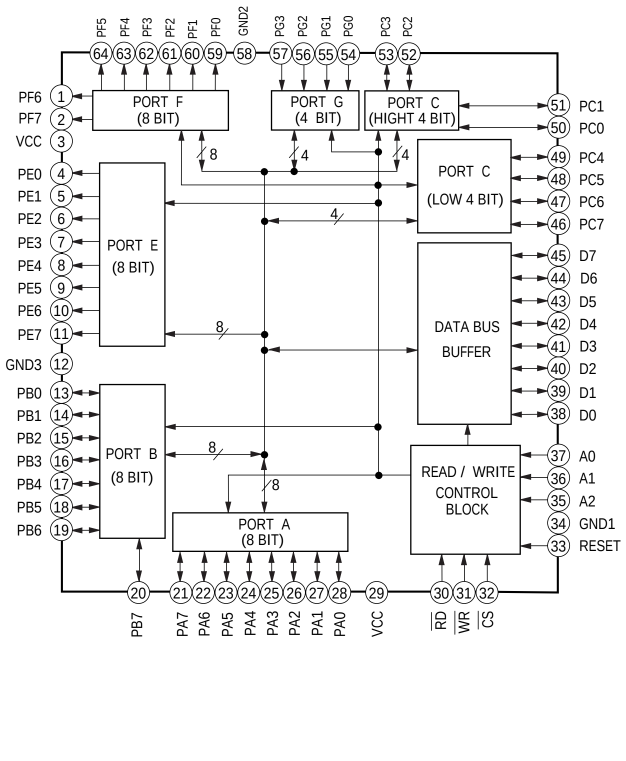
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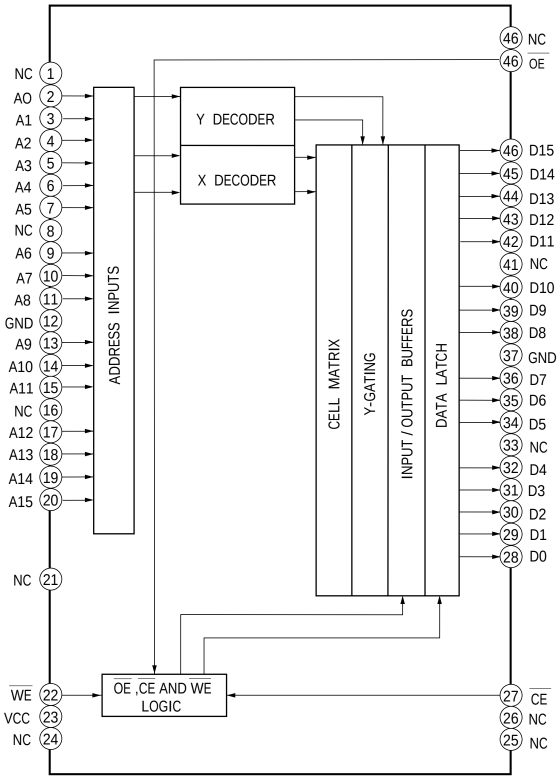
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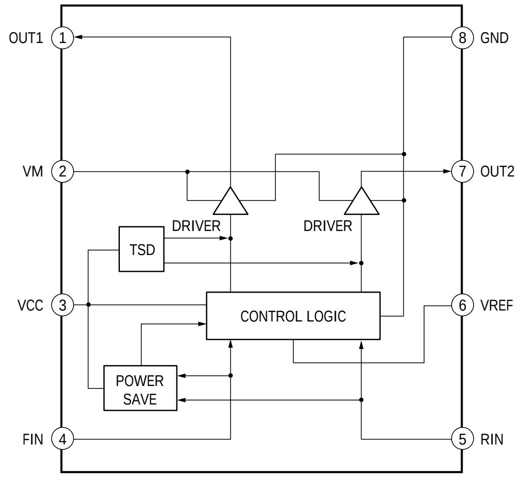
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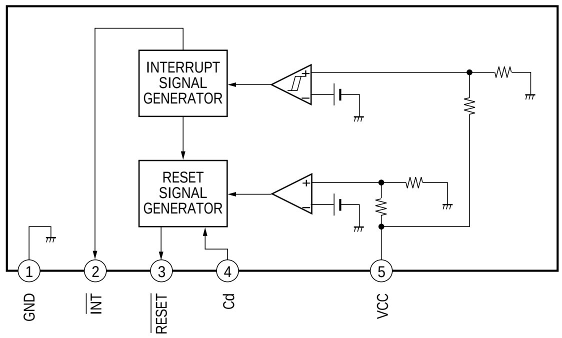
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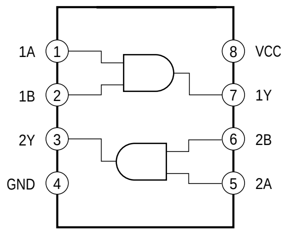
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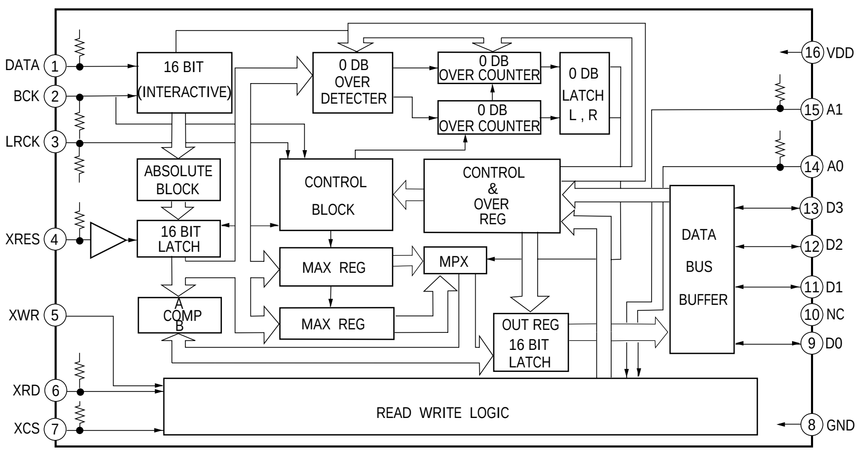
IC310 M62005FP



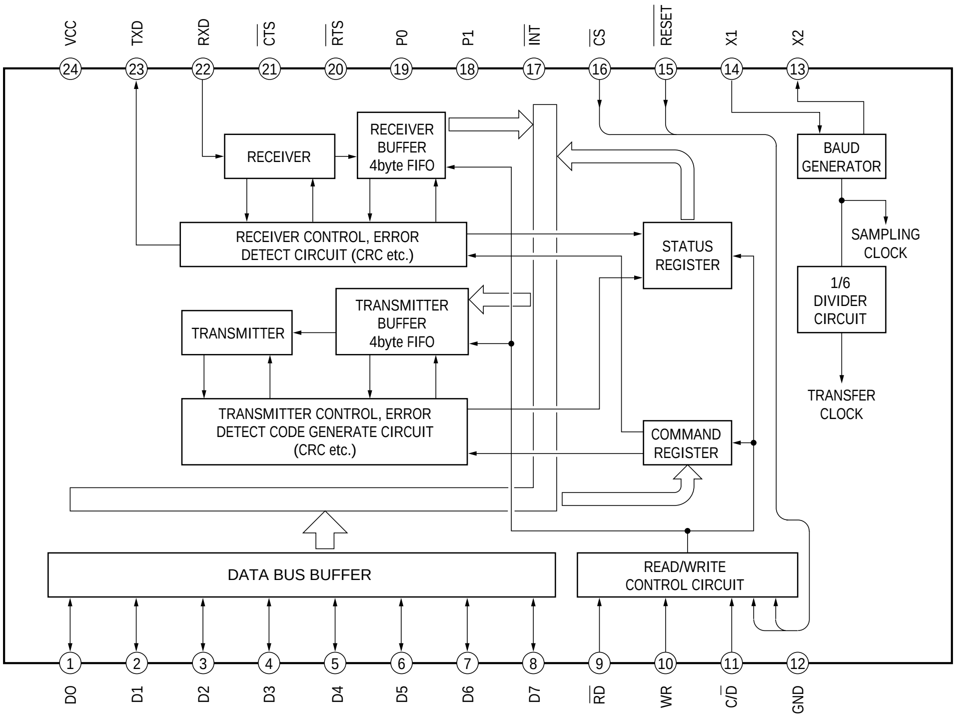
IC311, 314 TC7W08FU



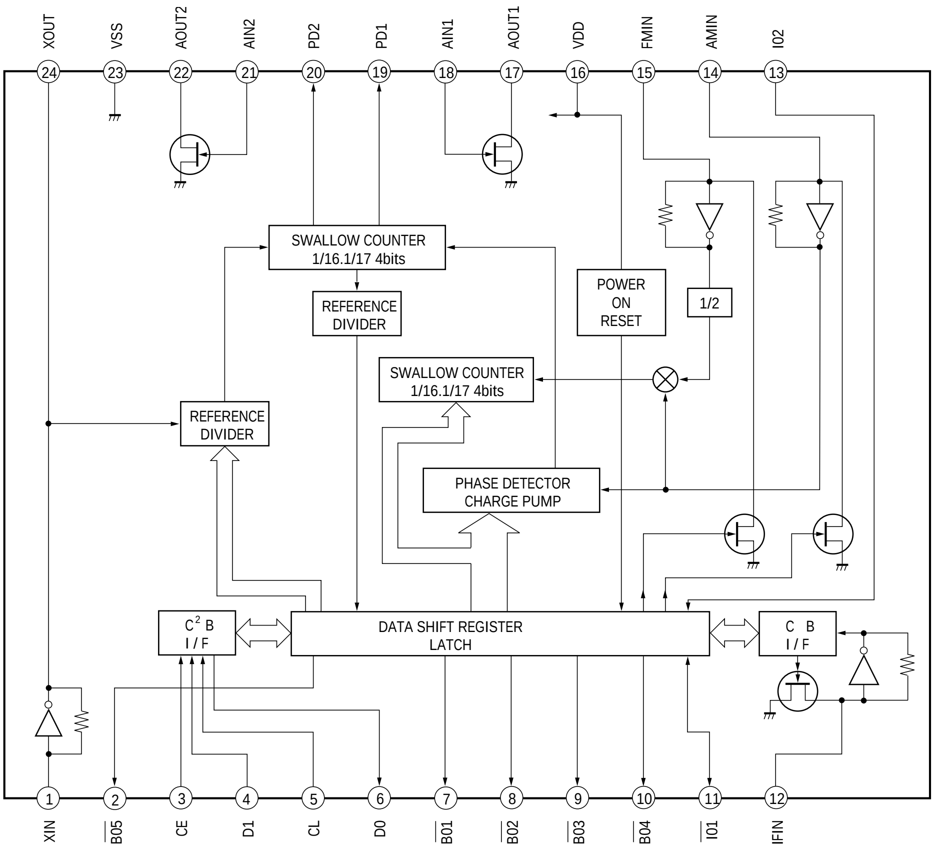
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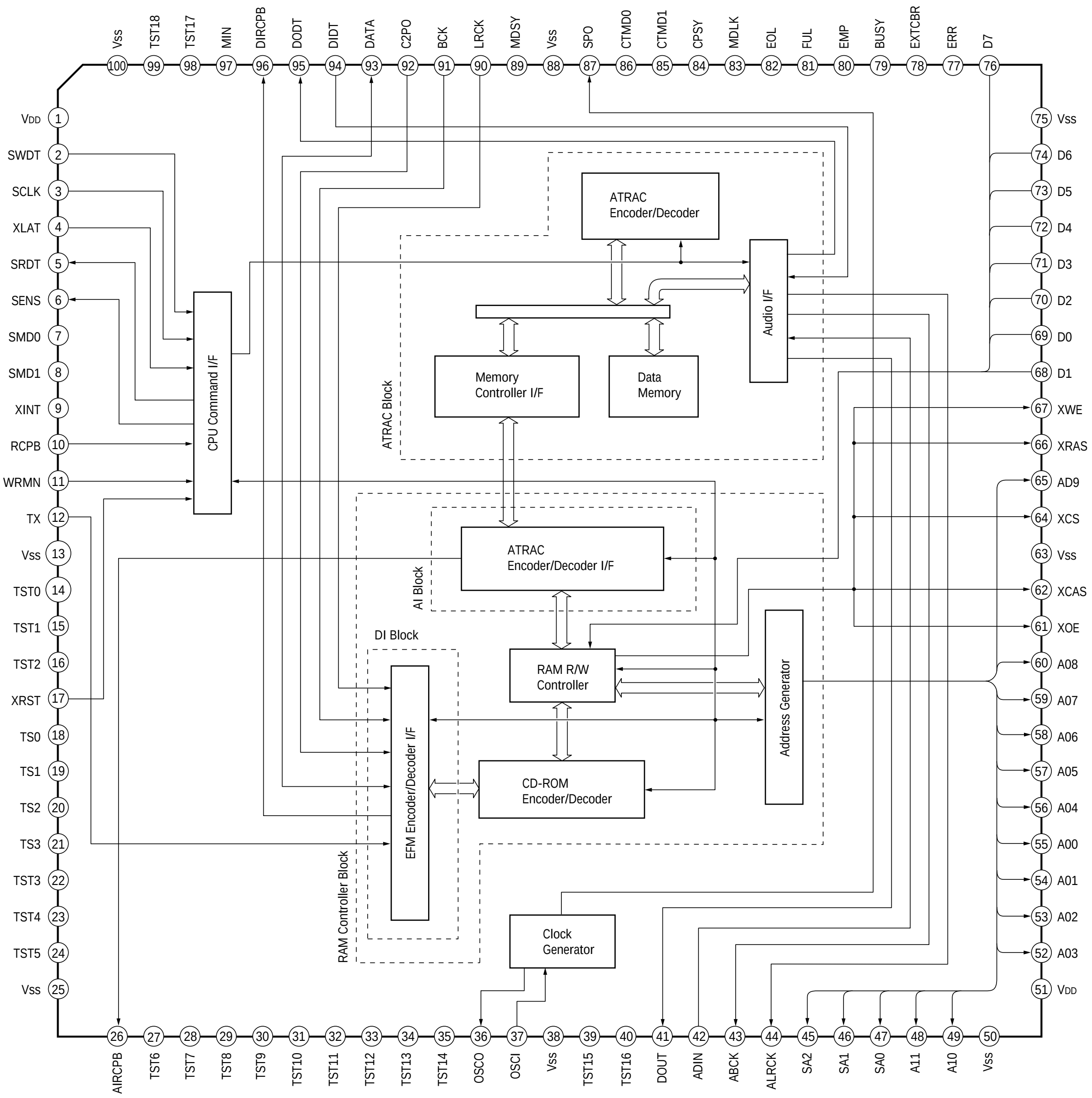
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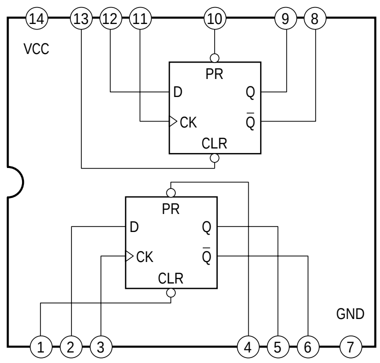
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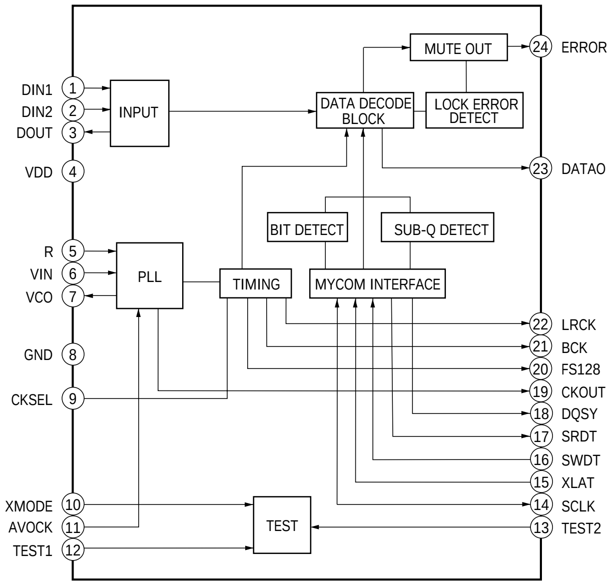
IC401, 407 CXD2536CR



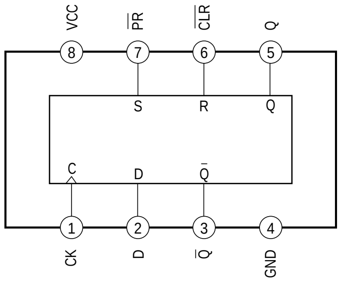
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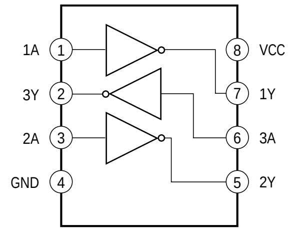
IC410 LC89051V-TLM



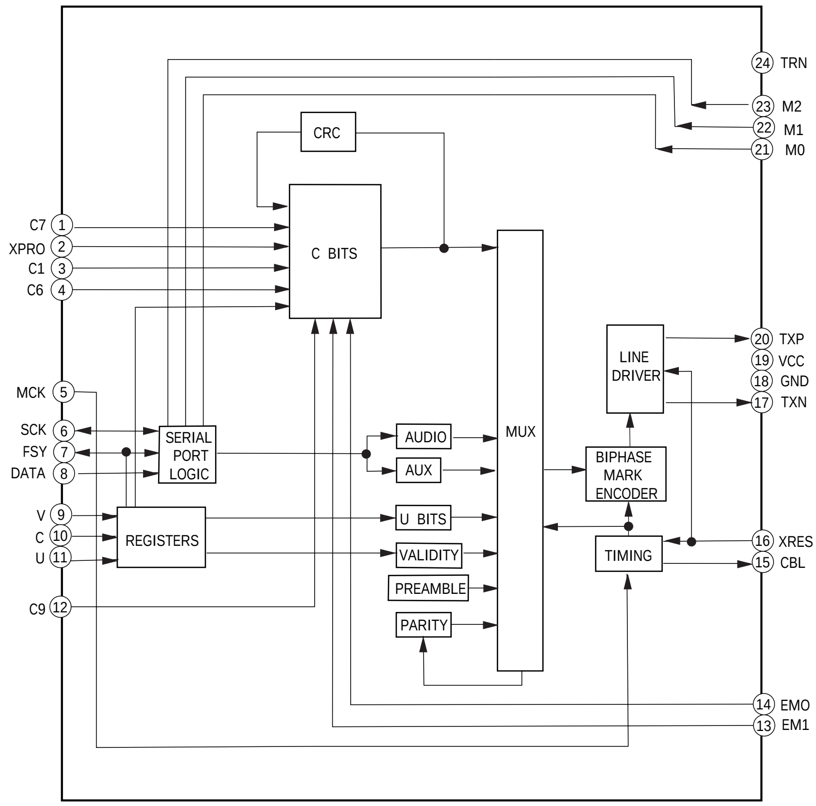
IC413, 506 TCW74FU



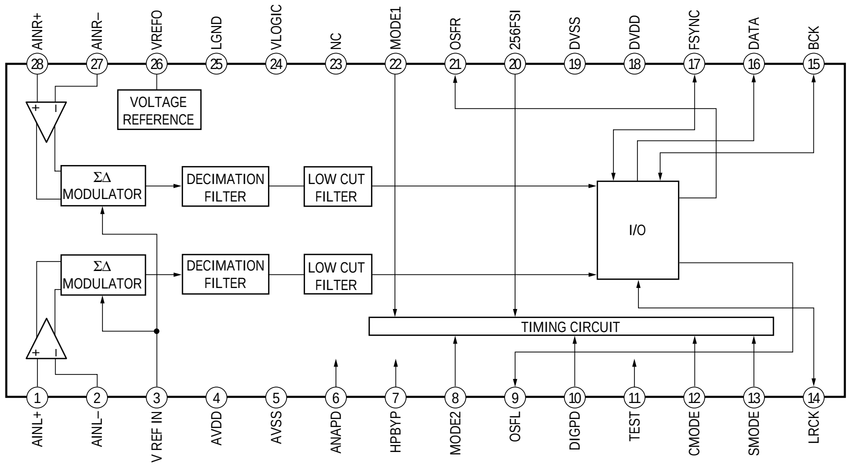
IC405, 703, 873 TC7WU04F



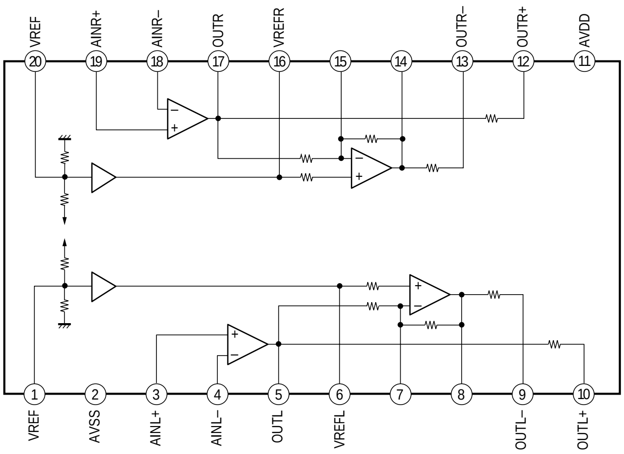
IC412 CS8402A-CS



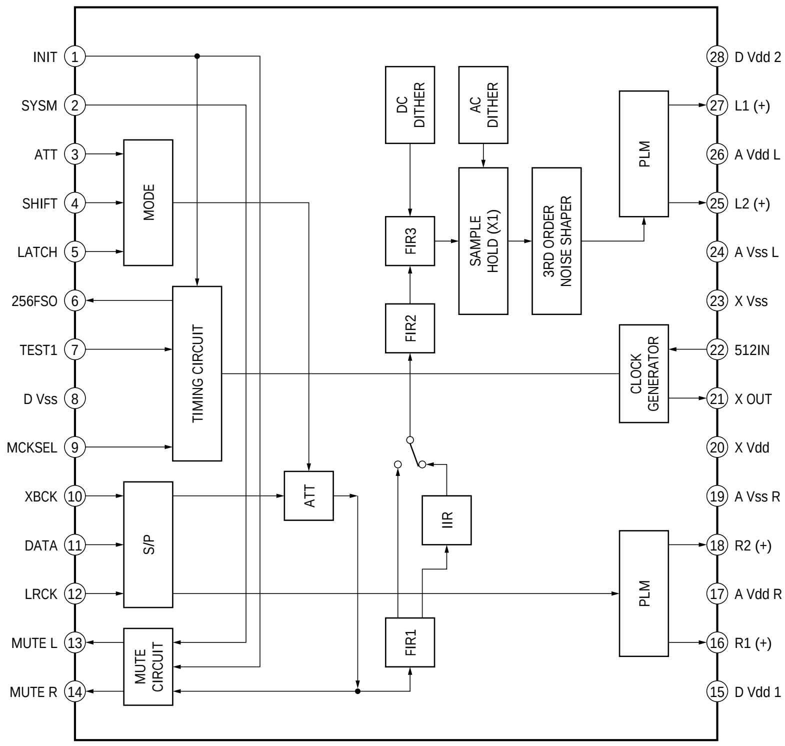
IC501 CXD8566M-T6



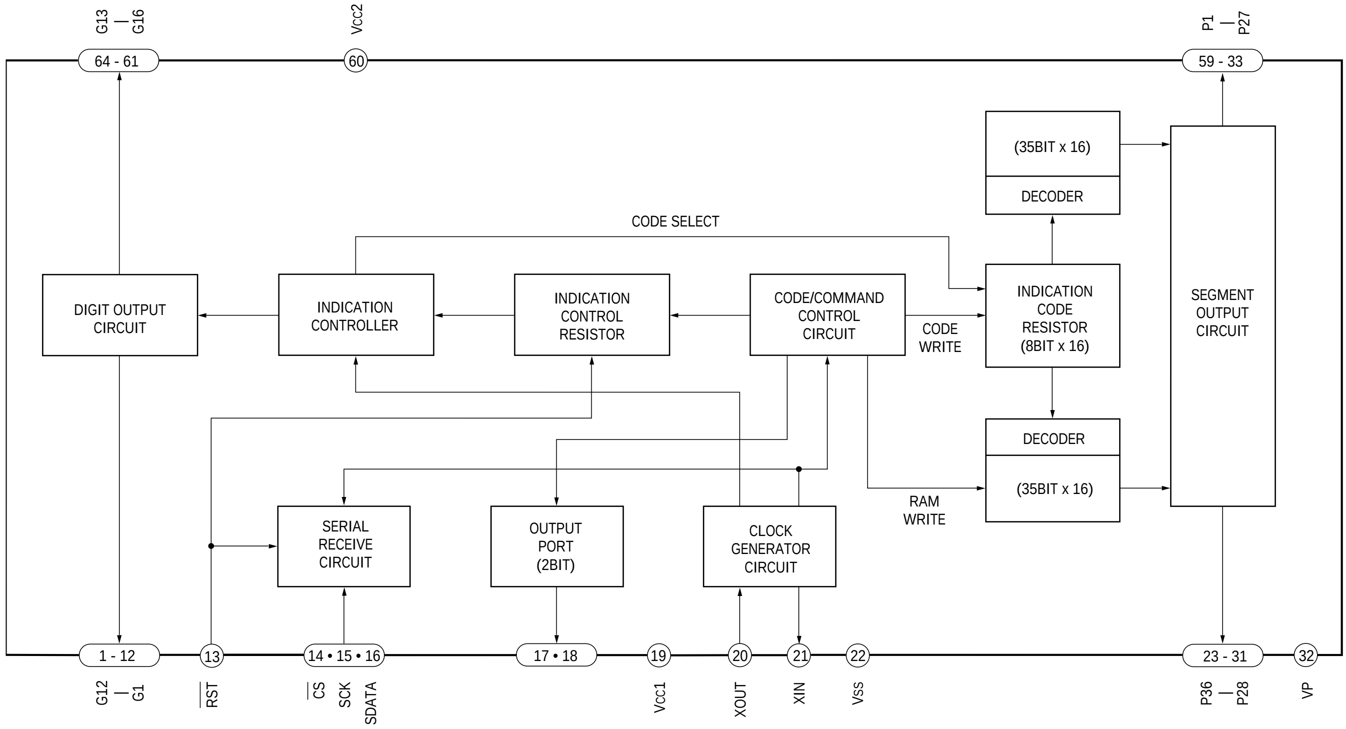
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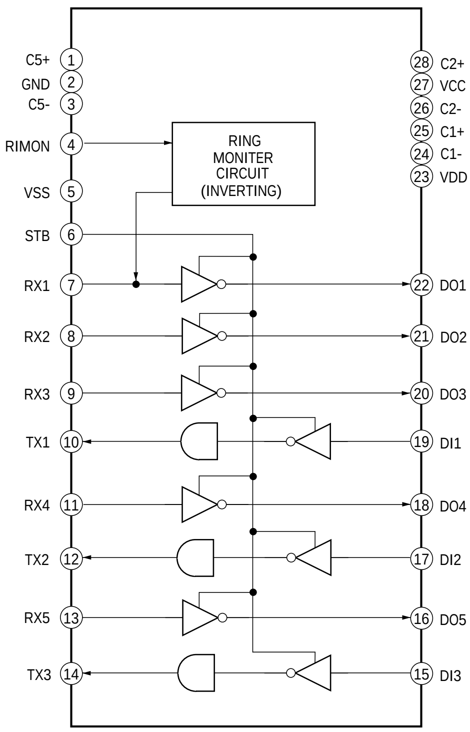
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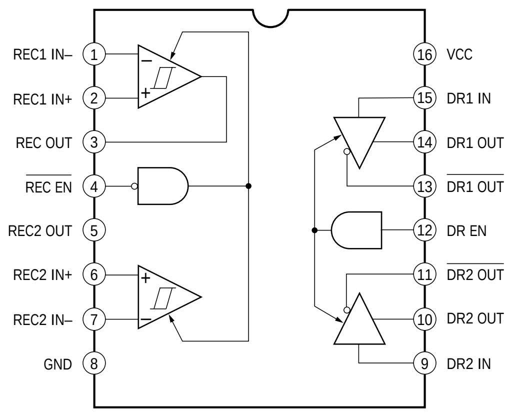
IC601 M66004FP



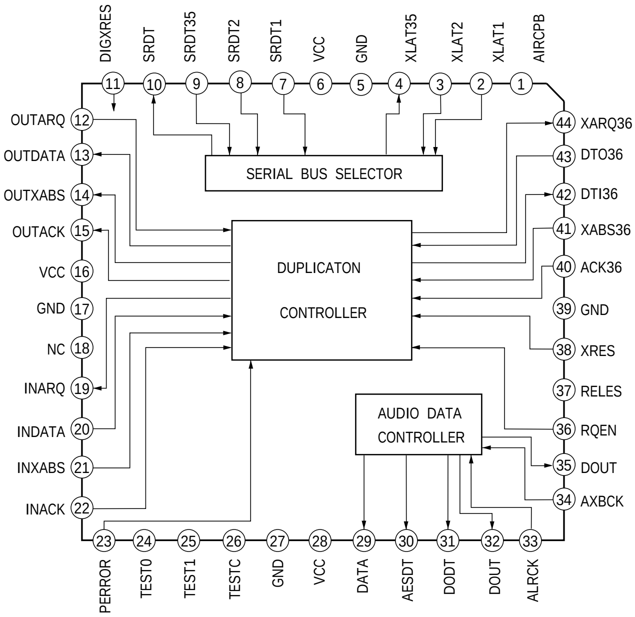
IC701 MC145583VF



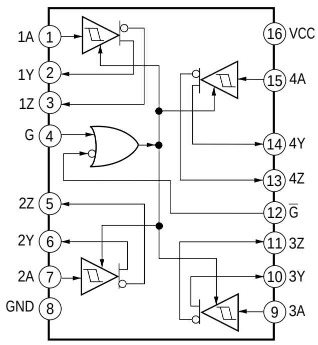
IC702, 871, 952, 954 MC34050M



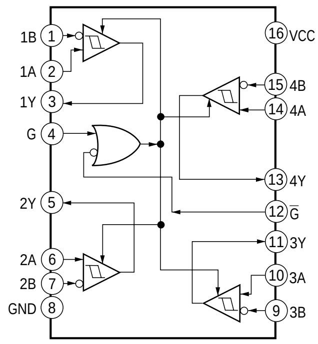
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IC951 AM26C31CNS



IC953 AM26C32CNS



SECTION 6
EXPLODED VIEWS

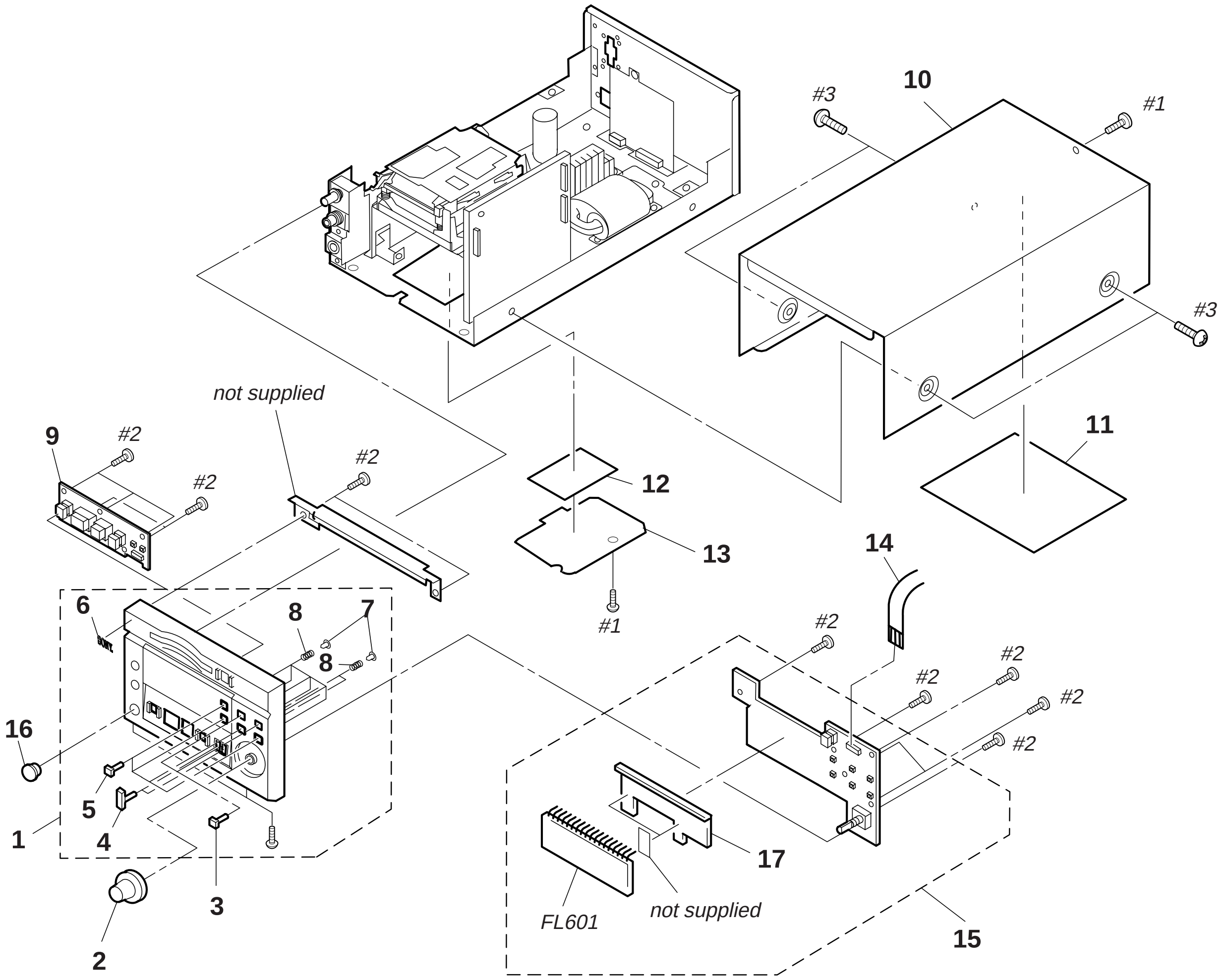
NOTE:

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  CND : Canadian model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

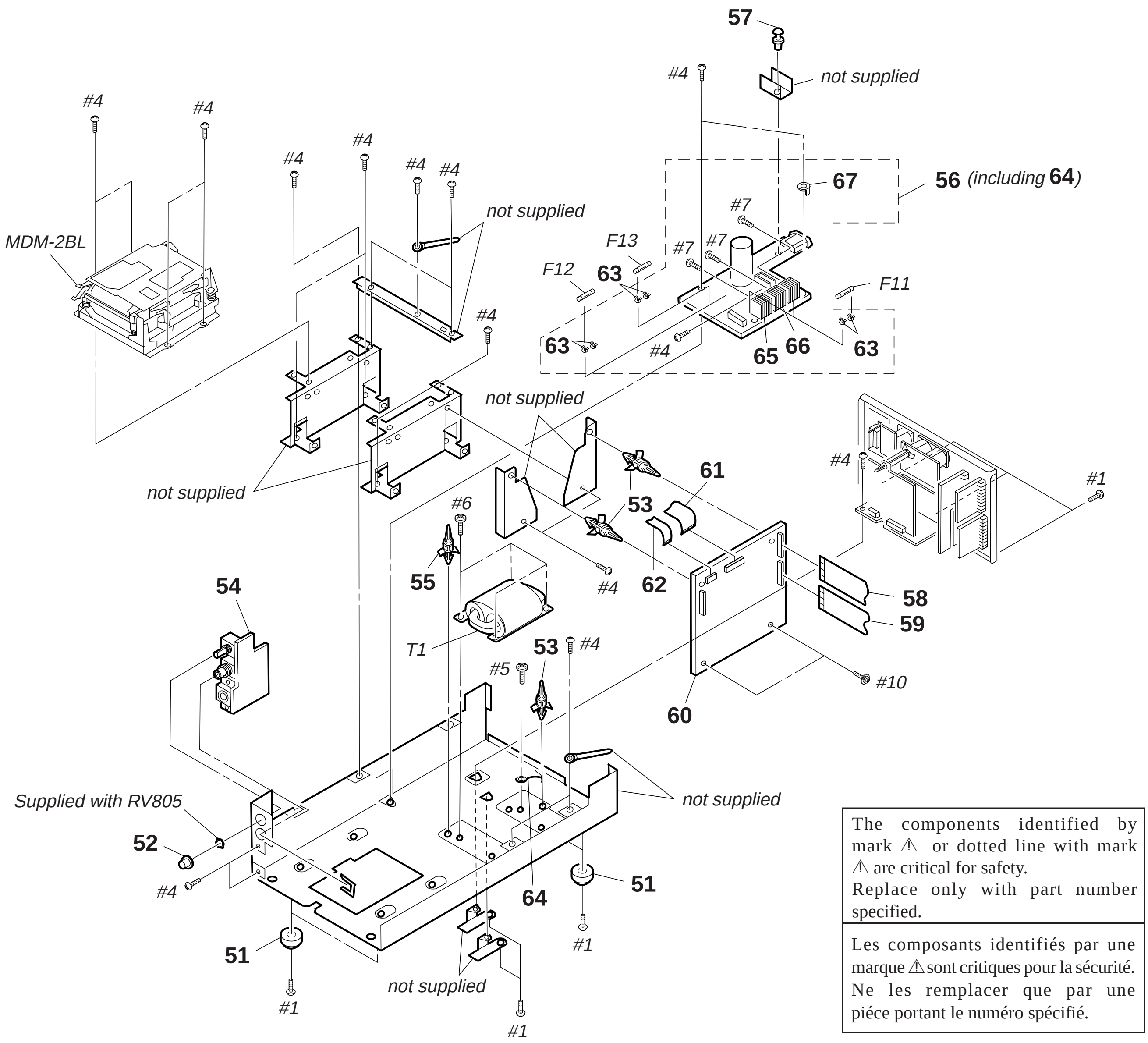
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

6-1. CASE AND FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
1	A-4672-172-A	PANEL ASSY, FRONT	
2	4-983-731-01	KNOB (AMS)	
3	3-906-065-11	BUTTON	
4	4-983-730-01	BUTTON (FF.REW)	
5	4-983-729-01	BUTTON (SHORT)	
6	4-942-568-01	EMBLEM (NO.5), SONY	
7	3-668-009-02	PIN, PUSH BUTTON	
* 8	3-567-099-01	SPRING, COMPRESSION	
* 9	1-662-427-11	KEY BOARD	
* 10	4-983-726-01	CASE	
* 11	4-987-771-01	FILTER (CASE)	
* 12	4-987-770-01	FILTER (LID CHASSIS)	
* 13	4-983-735-01	LID (CHASSIS)	
14	1-777-238-11	WIRE (FLAT TYPE)(16 CORE)	
* 15	A-4699-172-A	DISP BOARD, COMPLETE	
16	4-989-820-01	CAP (MINI-DIN)	
* 17	4-956-134-01	HOLDER (FL TUBE)	
FL601	1-517-542-11	INDICATOR TUBE, FLUORESCENT	

6-2. CHASSIS SECTION



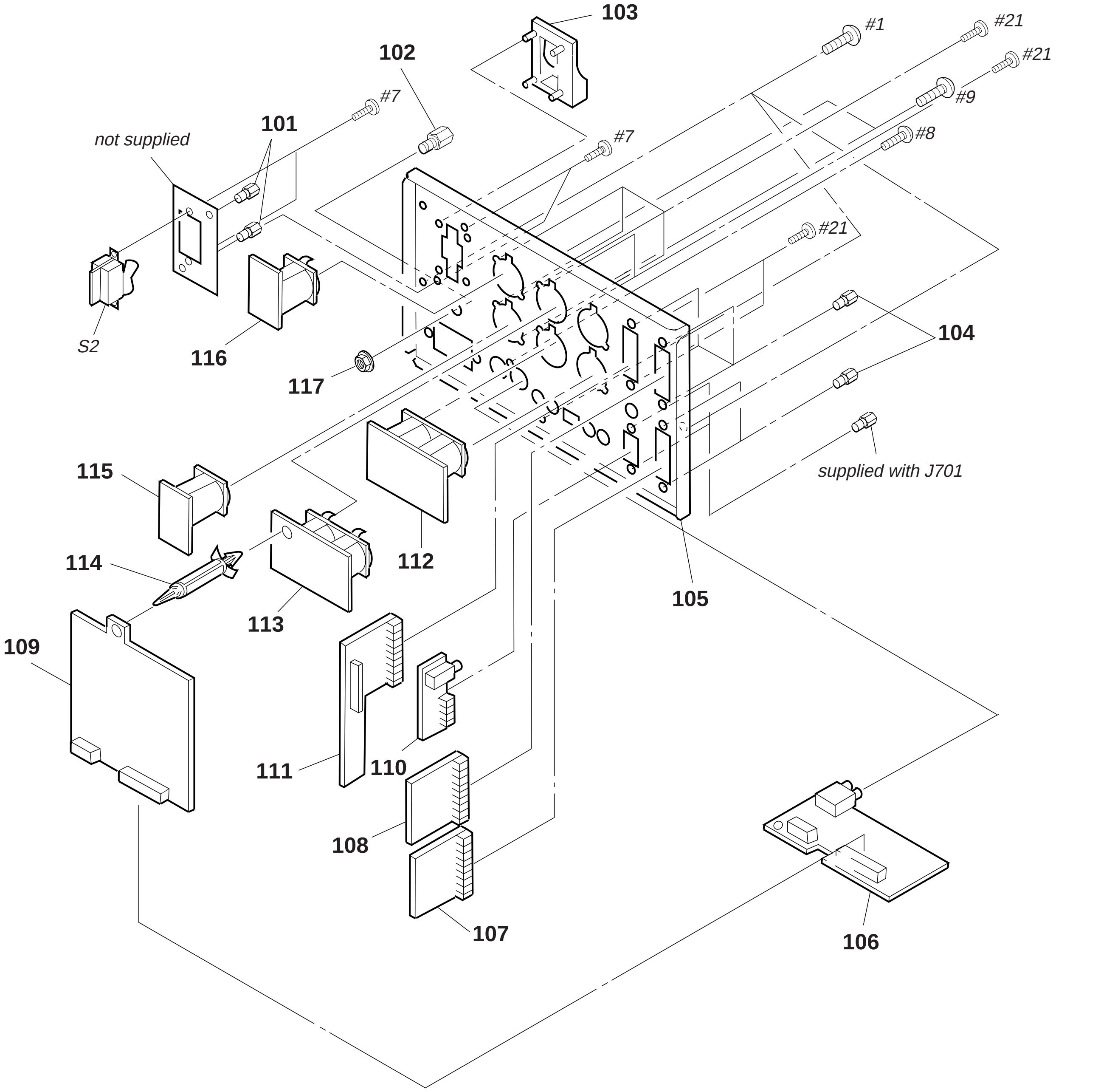
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
51	4-927-849-01	FOOT	
52	4-983-732-01	KNOB (HP)	
* 53	3-703-353-02	SUPPORT, PC BOARD	
* 54	1-662-428-11	HP BOARD	
* 55	3-703-353-01	SUPPORT, PC BOARD	
* 56	A-4699-171-A	POWER BOARD, COMPLETE	
57	3-531-576-01	RIVET	
58	1-775-227-11	WIRE (FLAT TYPE)(25 CORE)	
59	1-775-197-11	WIRE (FLAT TYPE)(21 CORE)	
* 60	A-4699-168-A	DIG BOARD, COMPLETE	
61	1-777-231-11	WIRE (FLAT TYPE)(30 CORE)	
62	1-777-232-11	WIRE (FLAT TYPE)(18 CORE)	

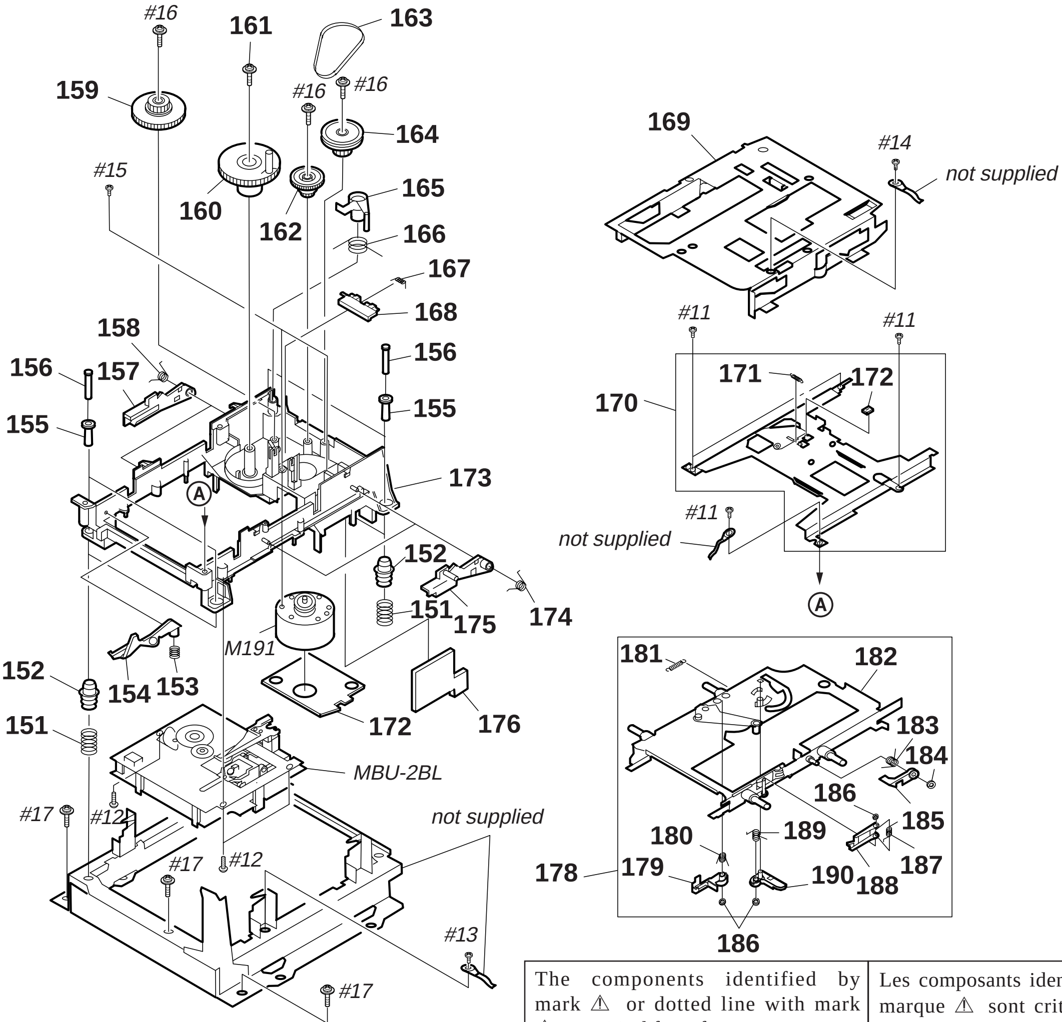
Ref. No.	Part No.	Description	Remark
63	1-533-293-11	FUSE HOLDER	
64	1-555-724-00	WIRE, GROUND	
* 65	4-363-146-00	HEAT SINK, V.OUT	
* 66	4-363-146-71	HEAT SINK, V.OUT	
* 67	4-942-204-01	PLATE, GROUND	
⚠F11	1-532-284-00	FUSE, TIME-LAG (630mA, 250V)(AEP,UK)	
⚠F11	1-576-098-11	FUSE (630mA, 250V)(US,CND)	
⚠F12	1-532-299-00	FUSE, TIME-LAG (5A, 250V)(AEP,UK)	
⚠F12	1-576-109-11	FUSE (5A, 125V)(US,CND)	
⚠F13	1-532-215-00	FUSE, TIME-LAG (800mA, 250V)(AEP,UK)	
⚠F13	1-576-099-11	FUSE (800mA, 250V)(US,CND)	
⚠T1	1-429-690-11	TRANSFORMER, POWER	

6-3. BACK PANEL SECTION



Ref. No.	Part No.	Description	Remark
101	3-906-061-01	SPACER (SW)	
* 102	X-4801-204-0	TERMINAL ASSY	
103	2-251-642-01	GUARD, POWER SWITCH	
104	3-387-373-01	SCREW (M2.6), HEXAGON	
* 105	4-983-721-03	PANEL, BACK	
* 106	A-4699-175-A	JACK BOARD, COMPLETE	
* 107	A-4699-180-A	DUP OUT BOARD, COMPLETE	
* 108	A-4699-179-A	DUP IN BOARD, COMPLETE	
* 109	A-4699-176-A	ADIO BOARD, COMPLETE	
* 110	1-662-432-11	232C BOARD	
* 111	A-4699-177-A	PIO BOARD, COMPLETE	
* 112	1-662-436-11	A OUT BOARD	
* 113	1-662-435-11	A IN BOARD	
* 114	3-703-353-10	SUPPORT, PC BOARD	
* 115	1-662-438-11	D OUT BOARD	
* 116	1-662-437-11	D IN BOARD	
117	4-859-606-01	NUT, FLANGE (M3)	

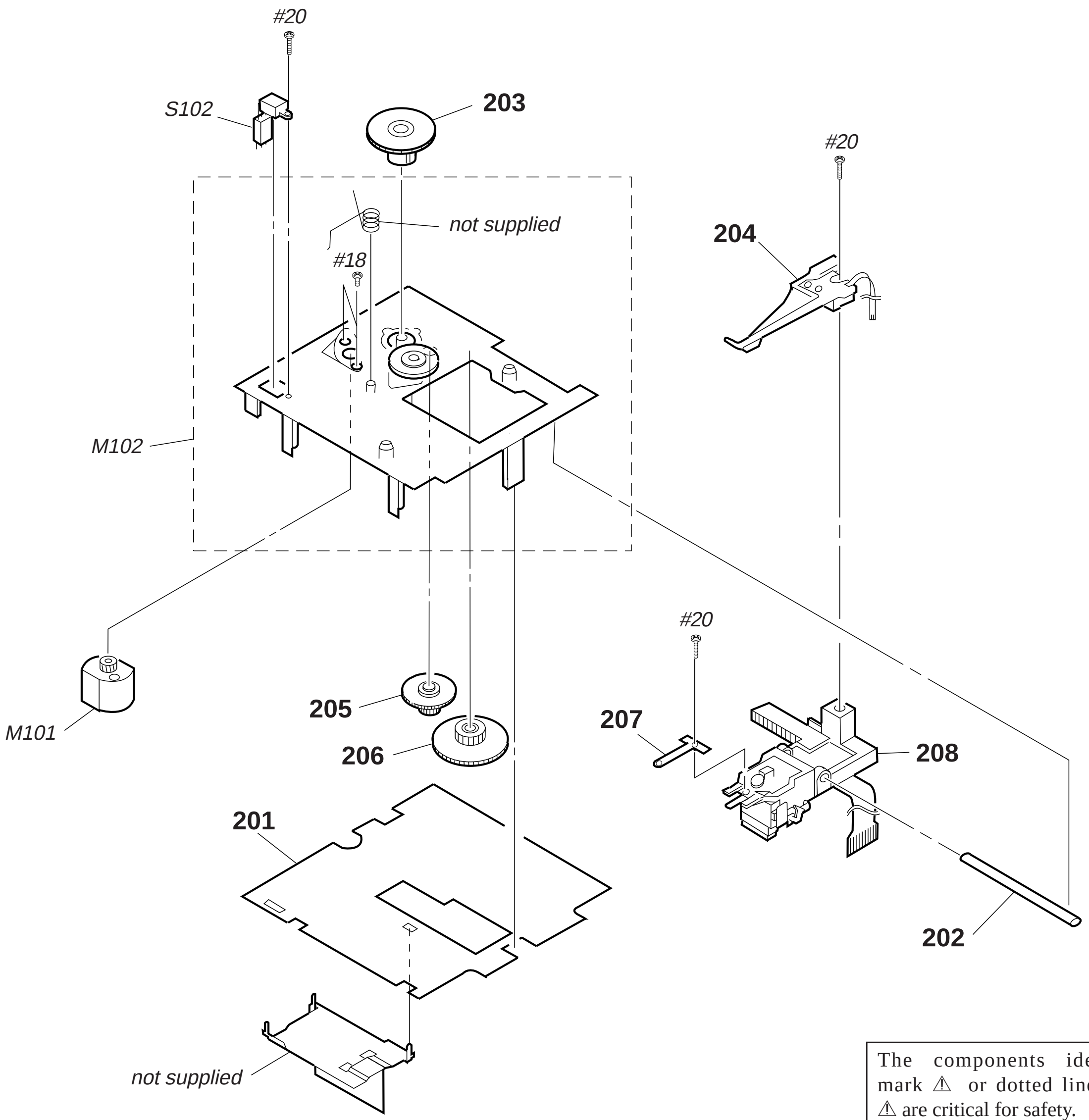
6-4. MD MECHANISM SECTION (MDM-2BL)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
151	4-967-673-01	SPRING, COMPRESSION	
152	4-967-671-01	INSULATOR (MD)	
153	4-970-710-01	SPRING, COMPRESSION	
154	4-979-400-01	LEVER (DOOR)	
155	4-983-100-01	COLLAR (DAMPER)	
156	4-972-910-01	SCREW (2.6X18), +B	
157	4-967-667-01	LEVER (UDL)	
158	4-967-668-01	SPRING (UDL), TORSION	
159	4-977-610-01	GEAR (BD-B)	
160	X-4945-069-1	CAM ASSY	
161	4-933-134-01	SCREW (+PTPWH M2.6X6)	
162	4-977-609-01	GEAR (BD-A)	
163	4-967-656-01	BELT (BD)	
164	4-977-608-01	PULLEY (BD)	
165	4-967-637-01	LEVER (SLM)	
166	4-984-426-01	SPRING (SLM), TORSION	
167	4-968-273-01	SPRING (OWH), TORSION	
168	4-968-272-01	LEVER (OWH)	
* 169	X-4945-872-1	SLIDER (M) ASSY	
170	A-4672-087-A	BRACKET (LVO) ASSY	
171	4-967-664-05	SPRING, TENSION	
172	4-983-110-01	CUSHION (LVO)	
173	4-977-777-01	BASE (BD)	
174	4-967-670-01	SPRING (UDR), TORSION	
175	4-967-669-01	LEVER (UDR)	
* 176	1-653-411-11	DETECTION SW BOARD	
* 177	1-653-412-11	MOTOR BOARD	
178	A-4672-071-B	HOLDER COMPLETE ASSY	
179	4-967-641-01	LEVER (L)	
180	4-967-642-01	SPRING (L), TORSION	
181	4-971-743-02	SPRING, TENSION	
182	X-4947-136-2	HOLDER ASSY	
183	4-982-099-01	SPRING (LOCK), TORSION	
184	4-968-919-01	WASHER, STOPPER	
185	4-982-040-01	LEVER (LOCK)	
186	4-968-919-11	WASHER, STOPPER	
187	4-967-646-01	SPRING (SHT), TORSION	
188	4-967-645-01	LEVER (SHT)	
189	4-983-106-02	SPRING (LM), TORSION	
190	4-967-639-01	LEVER (LM)	
M191	A-4660-646-A	MOTOR ASSY (LOADING)	
⚠S2	1-570-117-21	SWITCH, SEESAW (AC POWER)	

6-5. MD BASE UNIT SECTION
(MBU-2BL)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
* 201	A-4699-164-A	BD BOARD, COMPLETE	
202	4-967-678-01	SHAFT (OP)	
203	4-967-675-01	GEAR (SL-A)	
204	1-500-304-21	HEAD, OVER LIGHT	
205	4-967-676-01	GEAR (SL-B)	
206	4-967-677-01	GEAR (SL-C)	
207	4-967-679-01	SPRING (OP), LEAF	
⚠208	8-583-009-12	OPTICAL PICK UP KMS-210A/J-N	
M101	A-4660-651-A	MOTOR ASSY (SLED)	
M102	A-4672-170-A	CHASSIS ASSY, BU (SPINDLE)	
S102	1-762-148-11	SWITCH, PUSH (2 KEY)(PROTECT/REFLECT)	

232C	A IN
A OUT	ADIO

SECTION 7
ELECTRICAL PARTS LIST

Note:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable

- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μ A..., uPA...: μ PA..., uPB...: μ PB..., uPC...: μ PC..., uPD...: μ PD...
- CAPACITORS
  uF : μ F
- COILS
  uH : μ H
- Abbreviation
  CND : Canadian model

Ref. No.	Part No.	Description	Remark
*	1-662-432-11	232C BOARD	
		**********	
		< FERRITE BEAD >	
FB701	1-236-129-11	ENCAPSULATED COMPONENT	
FB702	1-236-129-11	ENCAPSULATED COMPONENT	
FB703	1-236-129-11	ENCAPSULATED COMPONENT	
FB704	1-236-129-11	ENCAPSULATED COMPONENT	
FB705	1-236-129-11	ENCAPSULATED COMPONENT	
FB706	1-236-129-11	ENCAPSULATED COMPONENT	
FB707	1-236-129-11	ENCAPSULATED COMPONENT	
		< JACK >	
* J701	1-766-194-11	CONNECTOR, D-SUB 9P (RS-232C)	
J703	1-562-837-21	JACK (REMOTE)	

****

Ref. No.	Part No.	Description	Remark
*	1-662-435-11	A IN BOARD	
		**********	
		< FERRITE BEAD >	
FB801	1-236-163-11	ENCAPSULATED COMPONENT	
FB802	1-236-163-11	ENCAPSULATED COMPONENT	
FB803	1-236-163-11	ENCAPSULATED COMPONENT	
FB804	1-236-163-11	ENCAPSULATED COMPONENT	
		< JACK >	
J801	1-750-786-11	CONNECTOR (XLR TYPE) 3P (ANALOG IN)	

****

Ref. No.	Part No.	Description	Remark
*	1-662-436-11	A OUT BOARD	
		***********	
		< FERRITE BEAD >	
FB805	1-236-163-11	ENCAPSULATED COMPONENT	
FB806	1-236-163-11	ENCAPSULATED COMPONENT	
FB807	1-236-163-11	ENCAPSULATED COMPONENT	
FB808	1-236-163-11	ENCAPSULATED COMPONENT	
		< JACK >	
J802	1-750-785-11	CONNECTOR (XLR TYPE) 3P (ANALOG OUT)	

****

Ref. No.	Part No.	Description				Remark
*	A-4699-176-A	ADIO BOARD, COMPLETE				
		*********************				
		< CAPACITOR >				
C801	1-104-665-11	ELECT	100uF	20%	16V	
C802	1-104-665-11	ELECT	100uF	20%	16V	
C809	1-104-665-11	ELECT	100uF	20%	16V	
C810	1-104-665-11	ELECT	100uF	20%	16V	
C811	1-124-907-11	ELECT	10uF	20%	50V	
C812	1-124-907-11	ELECT	10uF	20%	50V	
C813	1-124-478-11	ELECT	100uF	20%	25V	
C814	1-124-478-11	ELECT	100uF	20%	25V	
C815	1-124-478-11	ELECT	100uF	20%	25V	
C816	1-124-478-11	ELECT	100uF	20%	25V	
C825	1-104-527-11	FILM CHIP	100PF	5%	50V	
C826	1-104-527-11	FILM CHIP	100PF	5%	50V	
C827	1-104-527-11	FILM CHIP	100PF	5%	50V	
C828	1-104-527-11	FILM CHIP	100PF	5%	50V	
C829	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C830	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C833	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C834	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C835	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C836	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C839	1-104-665-11	ELECT	100uF	20%	16V	
C840	1-104-665-11	ELECT	100uF	20%	16V	
C872	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C873	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C874	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C875	1-124-779-00	ELECT CHIP	10uF	20%	16V	
C876	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C877	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C878	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C879	1-163-239-11	CERAMIC CHIP	33PF	5%	50V	
C880	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C881	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C882	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C885	1-165-319-11	CERAMIC CHIP	0.1uF		50V	
C886	1-165-319-11	CERAMIC CHIP	0.1uF		50V	
C887	1-165-319-11	CERAMIC CHIP	0.1uF		50V	
C888	1-165-319-11	CERAMIC CHIP	0.1uF		50V	
C891	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C892	1-163-263-11	CERAMIC CHIP	330PF	5%	50V	

Ref. No.	Part No.	Description			Remark
C896	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
* CN801	1-564-337-00	PIN, CONNECTOR 3P			
CN803	1-778-332-11	PIN, CONNECTOR (PC BOARD) 10P			
* CN804	1-564-338-00	PIN, CONNECTOR 4P			
* CN805	1-564-338-00	PIN, CONNECTOR 4P			
* CN807	1-564-336-00	PIN, CONNECTOR 2P			
* CN808	1-564-336-00	PIN, CONNECTOR 2P			
* CN815	1-569-504-11	PIN, CONNECTOR 9P			
* CN817	1-569-396-11	PIN, CONNECTOR 4P			
		< DIODE >			
D801	8-719-800-76	DIODE 1SS226			
D802	8-719-800-76	DIODE 1SS226			
D803	8-719-800-76	DIODE 1SS226			
D805	8-719-210-39	DIODE EC10QS-04			
D806	8-719-210-39	DIODE EC10QS-04			
D871	8-719-800-76	DIODE 1SS226			
D872	8-719-800-76	DIODE 1SS226			
		< IC >			
IC801	8-759-636-55	IC M5218AFP			
IC804	8-759-900-72	IC NE5532P			
IC805	8-759-900-72	IC NE5532P			
IC871	8-759-030-26	IC MC34050ML			
IC872	8-759-268-95	IC SN74HCT00ANS-E05			
IC873	8-759-242-70	IC TC7WU04F			
IC874	8-759-701-01	IC NJM2904M			
		< COIL >			
L871	1-410-375-11	INDUCTOR CHIP	3.3uH		
L873	1-414-235-11	INDUCTOR, FERRITE BEAD			
		< TRANSISTOR >			
Q805	8-729-900-53	TRANSISTOR DTC114EK			
Q806	8-729-038-16	TRANSISTOR RT1P434C-TP-1			
		< RESISTOR >			
R827	1-216-683-11	METAL CHIP	22K	0.5%	1/10W
R828	1-216-683-11	METAL CHIP	22K	0.5%	1/10W
R829	1-216-683-11	METAL CHIP	22K	0.5%	1/10W
R830	1-216-683-11	METAL CHIP	22K	0.5%	1/10W
R831	1-216-669-11	METAL CHIP	5.6K	0.5%	1/10W
R832	1-216-669-11	METAL CHIP	5.6K	0.5%	1/10W
R833	1-216-669-11	METAL CHIP	5.6K	0.5%	1/10W
R834	1-216-669-11	METAL CHIP	5.6K	0.5%	1/10W
R843	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R844	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R845	1-216-651-11	METAL CHIP	1K	0.5%	1/10W

Ref. No.	Part No.	Description			Remark
R846	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R847	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R848	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R849	1-216-073-00	METAL CHIP	10K	5%	1/10W
R850	1-216-073-00	METAL CHIP	10K	5%	1/10W
R851	1-216-073-00	METAL CHIP	10K	5%	1/10W
R852	1-216-073-00	METAL CHIP	10K	5%	1/10W
R853	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R854	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R855	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R856	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R857	1-216-017-91	METAL GLAZE	47	5%	1/10W
R858	1-216-017-91	METAL GLAZE	47	5%	1/10W
R859	1-216-017-91	METAL GLAZE	47	5%	1/10W
R860	1-216-017-91	METAL GLAZE	47	5%	1/10W
R861	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R862	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R863	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R864	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R875	1-216-026-00	METAL GLAZE	110	5%	1/10W
R876	1-216-295-91	CONDUCTOR, CHIP(2012)			
R877	1-216-295-91	CONDUCTOR, CHIP(2012)			
R879	1-216-025-91	METAL GLAZE	100	5%	1/10W
R880	1-216-025-91	METAL GLAZE	100	5%	1/10W
R881	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R882	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R883	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R884	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R885	1-216-081-00	METAL CHIP	22K	5%	1/10W
R886	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R887	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R888	1-216-033-00	METAL CHIP	220	5%	1/10W
R889	1-216-073-00	METAL CHIP	10K	5%	1/10W
R890	1-216-073-00	METAL CHIP	10K	5%	1/10W
R891	1-216-085-00	METAL CHIP	33K	5%	1/10W
R892	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R893	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R895	1-216-017-91	METAL GLAZE	47	5%	1/10W
R896	1-216-017-91	METAL GLAZE	47	5%	1/10W
R897	1-216-017-91	METAL GLAZE	47	5%	1/10W
R898	1-216-017-91	METAL GLAZE	47	5%	1/10W
		< RELAY >			
RY801	1-755-062-11	RELAY			
		< TRANSFORMER >			
T871	1-429-691-11	TRANSFORMER, PULSE			
T872	1-429-691-11	TRANSFORMER, PULSE			

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BD

Ref. No.	Part No.	Description				Remark
*	A-4699-164-A	BD BOARD, COMPLETE				
		*******************				
		< CAPACITOR >				
C101	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C102	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C103	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C104	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C105	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C106	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V	
C107	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C108	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C109	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C111	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C112	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C113	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	
C114	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C115	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	
C116	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V	
C117	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C119	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C120	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C121	1-126-395-11	ELECT	22uF	20%	16V	
C122	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C123	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C124	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C127	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C128	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C129	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C130	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C131	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C132	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	
C133	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C134	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C135	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C136	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	
C140	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C141	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C142	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C143	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C144	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C151	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C152	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C155	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C156	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C160	1-126-393-11	ELECT	33uF	20%	10V	
C161	1-104-601-11	ELECT CHIP	10uF	20%	10V	
C163	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C164	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C166	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V	
C167	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C169	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C170	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C171	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C175	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C176	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C177	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C178	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C181	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C182	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C183	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C184	1-107-836-11	ELECT CHIP	22uF	20%	8V	
C185	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V	
C186	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C191	1-126-395-11	ELECT	22uF	20%	16V	
C193	1-164-346-11	CERAMIC CHIP	1uF		16V	
C194	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	
C201	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	
C202	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C203	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C204	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C205	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C206	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C207	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C208	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C209	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C210	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V	
C211	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C212	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V	
C213	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
		< CONNECTOR >				
CN101	1-766-508-11	CONNECTOR, FFC/FPC (ZIF) 22P				
CN102	1-766-510-21	CONNECTOR, FFC/FPC 30P				
CN103	1-766-509-21	CONNECTOR, FFC/FPC 18P				
CN104	1-766-898-21	HOUSING, CONNECTOR (PC BOARD) 4P				
CN202	1-766-898-21	HOUSING, CONNECTOR (PC BOARD) 4P				
		< DIODE >				
D101	8-719-988-62	DIODE 1SS355				
D161	8-719-421-15	DIODE MA8027-L				
D181	8-719-033-60	DIODE F1P2STP				
D183	8-719-033-60	DIODE F1P2STP				
		< FERRITE BEAD >				
FB101	1-414-234-11	INDUCTOR, FERRITE BEAD				
FB102	1-414-234-11	INDUCTOR, FERRITE BEAD				
FB103	1-414-234-11	INDUCTOR, FERRITE BEAD				
FB105	1-414-234-11	INDUCTOR, FERRITE BEAD				
FB106	1-414-234-11	INDUCTOR, FERRITE BEAD				
FB121	1-414-234-11	INDUCTOR, FERRITE BEAD				
FB122	1-414-234-11	INDUCTOR, FERRITE BEAD				
FB161	1-414-234-11	INDUCTOR, FERRITE BEAD				
FB162	1-414-234-11	INDUCTOR, FERRITE BEAD				

Ref. No.	Part No.	Description			Remark
		< IC >			
IC101	8-752-072-68	IC CXA1981AR			
IC102	8-759-243-19	IC TC7SU04F			
IC121	8-752-378-79	IC CXD2535CR			
IC122	8-759-243-19	IC TC7SU04F			
IC151	8-759-430-25	IC BH6511FS			
IC171	8-759-095-56	IC X24C08SC7000			
IC172	8-759-149-73	IC uPC842G2			
IC181	8-759-095-65	IC TC74ACT540FS			
IC182	8-759-243-19	IC TC7SU04F			
IC191	8-759-822-99	IC L88MS05T-FA			
IC201	8-759-098-52	IC CXA8027N-ELL2000			
		< COIL >			
L151	1-412-622-51	INDUCTOR	10uH		
L152	1-412-622-51	INDUCTOR	10uH		
L153	1-412-039-51	INDUCTOR CHIP	100uH		
L154	1-412-039-51	INDUCTOR CHIP	100uH		
L201	1-412-622-51	INDUCTOR	10uH		
		< TRANSISTOR >			
Q101	8-729-028-91	TRANSISTOR DTA144EUA-T106			
Q162	8-729-101-07	TRANSISTOR 2SB798-DL			
Q163	8-729-028-91	TRANSISTOR DTA144EUA-T106			
Q164	8-729-028-81	TRANSISTOR DTA123JUA-T106			
Q181	8-729-018-75	TRANSISTOR 2SJ278MY			
Q182	8-729-017-65	TRANSISTOR 2SK1764KY			
		< RESISTOR >			
R101	1-216-077-00	METAL CHIP	15K	5%	1/10W
R102	1-216-073-00	METAL CHIP	10K	5%	1/10W
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W
R104	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R105	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R106	1-216-133-00	METAL CHIP	3.3M	5%	1/10W
R107	1-216-113-00	METAL CHIP	470K	5%	1/10W
R110	1-216-077-00	METAL CHIP	15K	5%	1/10W
R113	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R114	1-216-025-91	METAL GLAZE	100	5%	1/10W
R116	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R117	1-216-113-00	METAL CHIP	470K	5%	1/10W
R120	1-216-025-91	METAL GLAZE	100	5%	1/10W
R121	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R122	1-216-121-91	METAL GLAZE	1M	5%	1/10W
R123	1-216-037-00	METAL CHIP	330	5%	1/10W
R125	1-216-025-91	METAL GLAZE	100	5%	1/10W
R126	1-216-295-91	CONDUCTOR, CHIP(2012)			
R131	1-216-073-00	METAL CHIP	10K	5%	1/10W
R132	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R133	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R134	1-216-037-00	METAL CHIP	330	5%	1/10W
R135	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R136	1-216-041-00	METAL CHIP	470	5%	1/10W
R137	1-216-025-91	METAL GLAZE	100	5%	1/10W
R140	1-216-017-91	METAL GLAZE	47	5%	1/10W
R141	1-216-295-91	CONDUCTOR, CHIP(2012)			
R142	1-216-073-00	METAL CHIP	10K	5%	1/10W
R143	1-216-073-00	METAL CHIP	10K	5%	1/10W
R144	1-216-025-91	METAL GLAZE	100	5%	1/10W
R145	1-216-295-91	CONDUCTOR, CHIP(2012)			
R146	1-216-037-00	METAL CHIP	330	5%	1/10W
R147	1-216-025-91	METAL GLAZE	100	5%	1/10W
R148	1-216-045-00	METAL CHIP	680	5%	1/10W
R150	1-216-295-91	CONDUCTOR, CHIP(2012)			
R161	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R162	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R163	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R164	1-216-045-00	METAL CHIP	680	5%	1/10W
R165	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R166	1-220-250-11	METAL GLAZE	10	5%	1/2W
R167	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R169	1-219-724-11	METAL CHIP	1	1%	1/4W
R170	1-216-073-00	METAL CHIP	10K	5%	1/10W
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W
R172	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R174	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R176	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R178	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R181	1-216-073-00	METAL CHIP	10K	5%	1/10W
R182	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R183	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R186	1-216-134-00	METAL CHIP	2.2	5%	1/8W
R187	1-216-134-00	METAL CHIP	2.2	5%	1/8W
R201	1-216-037-00	METAL CHIP	330	5%	1/10W
R202	1-219-724-11	METAL CHIP	1	1%	1/4W
R203	1-219-724-11	METAL CHIP	1	1%	1/4W
R204	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R206	1-208-806-11	METAL GLAZE	10K	0.50%	1/10W
R207	1-216-073-00	METAL CHIP	10K	5%	1/10W
R209	1-216-295-91	CONDUCTOR, CHIP(2012)			
R210	1-216-295-91	CONDUCTOR, CHIP(2012)			
R211	1-216-295-91	CONDUCTOR, CHIP(2012)			
R2050	1-208-806-11	METAL GLAZE	10K	0.50%	1/10W
		< VARIABLE RESISTOR >			
RV101	1-241-396-11	RES, ADJ, METAL GLAZE 22K			
RV102	1-241-396-11	RES, ADJ, METAL GLAZE 22K			
		< SWITCH >			
S101	1-572-467-41	SWITCH, PUSH (1 KEY) (LIMIT IN)			

Ref. No.	Part No.	Description			Remark
		< VIBRATOR >			
X120	1-579-870-21	VIBRATOR, CRYSTAL (22.5792 MHz)			
**					
*	1-662-437-11	D IN BOARD **********			
		< FERRITE BEAD >			
FB871	1-236-058-21	ENCAPSULATED COMPONENT			
FB872	1-236-058-21	ENCAPSULATED COMPONENT			
		< JACK >			
J871	1-750-788-11	CONNECTOR (XLR TYPE) 3P (AES/EBU IN)			
**					
*	1-662-438-11	D OUT BOARD ***********			
		< FERRITE BEAD >			
FB873	1-236-058-21	ENCAPSULATED COMPONENT			
FB874	1-236-058-21	ENCAPSULATED COMPONENT			
		< JACK >			
J872	1-750-787-11	CONNECTOR (XLR TYPE) 3P (AES/EBU OUT)			
**					
*	1-653-411-11	DETECTION SW BOARD ******************			
		< CONNECTOR >			
CN193	1-770-010-21	CONNECTOR, BOARD TO BOARD 4P			
		< SWITCH >			
S191	1-762-149-11	SWITCH, PUSH (1 KEY)(LOAD OUT DET)			
S192	1-762-149-11	SWITCH, PUSH (1 KEY)(LOAD IN DET)			
S193	1-762-149-11	SWITCH, PUSH (1 KEY)(CHUCKING IN DET)			
**					
*	A-4699-168-A	DIG BOARD, COMPLETE ********************			
		< CAPACITOR >			
C301	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C302	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C303	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C304	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C305	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C306	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C307	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C308	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C309	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C310	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C311	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C312	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C313	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C314	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C315	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C316	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C317	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C318	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C319	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C320	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C321	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C322	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C323	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C324	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C325	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C326	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C327	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V
C328	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C329	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C330	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C331	1-126-395-11	ELECT	22uF	20%	16V
C332	1-126-193-11	ELECT	1uF	20%	50V
C333	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C334	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C335	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C336	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C337	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C338	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C339	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C340	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C341	1-136-165-00	FILM	0.1uF	5%	50V
C402	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C403	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C404	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C405	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C406	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C407	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C408	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C409	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C410	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C411	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C412	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C414	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C415	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C416	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C417	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C418	1-163-059-91	CERAMIC CHIP	0.01uF	10%	50V
C419	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C420	1-163-125-00	CERAMIC CHIP	220PF	5%	50V

Ref. No.	Part No.	Description			Remark
C421	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C422	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C423	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C424	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C425	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C426	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C427	1-126-395-11	ELECT	22uF	20%	16V
C428	1-126-395-11	ELECT	22uF	20%	16V
C429	1-126-395-11	ELECT	22uF	20%	16V
C430	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C431	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C432	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C433	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C434	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C435	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C436	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C437	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C438	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C439	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C440	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C441	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C442	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C443	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C444	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C445	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C446	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C447	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C448	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C449	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C450	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C451	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C501	1-126-395-11	ELECT	22uF	20%	16V
C502	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C503	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C504	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C505	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C506	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C507	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C508	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C509	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C510	1-126-395-11	ELECT	22uF	20%	16V
C511	1-126-395-11	ELECT	22uF	20%	16V
C512	1-126-395-11	ELECT	22uF	20%	16V
C513	1-104-527-11	FILM CHIP	100PF	5%	50V
C514	1-104-527-11	FILM CHIP	100PF	5%	50V
C515	1-104-527-11	FILM CHIP	100PF	5%	50V
C516	1-104-527-11	FILM CHIP	100PF	5%	50V
C517	1-104-527-11	FILM CHIP	100PF	5%	50V
C518	1-104-527-11	FILM CHIP	100PF	5%	50V
C519	1-104-547-11	FILM CHIP	0.0047uF	5%	16V
C520	1-104-547-11	FILM CHIP	0.0047uF	5%	16V

Ref. No.	Part No.	Description			Remark
C521	1-104-540-11	FILM CHIP	0.0012uF	5%	50V
C522	1-104-540-11	FILM CHIP	0.0012uF	5%	50V
C523	1-104-531-11	FILM CHIP	220PF	5%	50V
C524	1-104-531-11	FILM CHIP	220PF	5%	50V
C530	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C534	1-126-395-11	ELECT	22uF	20%	16V
C535	1-126-395-11	ELECT	22uF	20%	16V
C536	1-126-395-11	ELECT	22uF	20%	16V
C538	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C539	1-104-547-11	FILM CHIP	0.0047uF	5%	16V
C540	1-104-547-11	FILM CHIP	0.0047uF	5%	16V
C541	1-104-547-11	FILM CHIP	0.0047uF	5%	16V
C542	1-104-547-11	FILM CHIP	0.0047uF	5%	16V
C543	1-104-531-11	FILM CHIP	220PF	5%	50V
C544	1-104-531-11	FILM CHIP	220PF	5%	50V
C545	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C546	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C547	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C548	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C549	1-126-395-11	ELECT	22uF	20%	16V
C550	1-126-395-11	ELECT	22uF	20%	16V
C551	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C552	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C553	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C554	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C556	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C557	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C558	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C559	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C560	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C561	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C562	1-126-395-11	ELECT	22uF	20%	16V
C563	1-126-395-11	ELECT	22uF	20%	16V
C564	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C565	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C566	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C567	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C901	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C902	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C903	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C904	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C905	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN51	1-774-333-21	CONNECTOR, FFC/FPC 21P			
CN101	1-774-031-21	CONNECTOR, FFC/FPC 30P			
* CN102	1-770-154-11	PIN, CONNECTOR (PC BOARD) 6P			
CN103	1-774-030-21	CONNECTOR, FFC/FPC 18P			
CN601	1-778-331-11	CONNECTOR, FFC/FPC 16P			
CN701	1-774-769-11	CONNECTOR, FFC/FPC 25P			
CN702	1-778-334-11	PIN, CONNECTOR (PC BOARD) 13P			
* CN706	1-770-154-11	PIN, CONNECTOR (PC BOARD) 6P			

DIG

Ref. No.	Part No.	Description	Remark
CN821	1-778-332-11	PIN, CONNECTOR (PC BOARD) 10P	
* CN822	1-695-241-31	PIN, CONNECTOR (PC BOARD) 8P	
CN901	1-778-334-11	PIN, CONNECTOR (PC BOARD) 13P	
CN902	1-778-334-11	PIN, CONNECTOR (PC BOARD) 13P	
		< DIODE >	
D301	8-719-016-74	DIODE 1SS352	
D302	8-719-016-74	DIODE 1SS352	
D303	8-719-056-15	DIODE F01J4L	
D304	8-719-800-76	DIODE 1SS226	
D305	8-719-800-76	DIODE 1SS226	
D401	8-719-033-11	DIODE KV1550TL00	
D501	8-719-800-76	DIODE 1SS226	
D502	8-719-800-76	DIODE 1SS226	
		< IC >	
IC301	8-759-426-94	IC M30600E8FP	
IC302	8-759-425-28	IC AT29C1024-70TC	
IC303	8-759-374-82	IC LC3564SM-70-TLM	
IC304	8-759-058-20	IC M66500FP	
IC305	8-759-500-05	IC MSM6338MS-K	
IC306	8-759-058-20	IC M66500FP	
IC307	8-759-425-26	IC TD62382AF(EL)	
IC308	8-759-425-26	IC TD62382AF(EL)	
IC309	8-759-040-83	IC BA6287F	
IC310	8-759-425-29	IC M62005FP-600C	
IC311	8-759-082-58	IC TC7W08FU	
IC312	8-759-421-57	IC LC3564SM-70-TEL	
IC313	8-759-182-29	IC M66230FP-T1	
IC314	8-759-082-58	IC TC7W08FU	
IC401	8-752-371-17	IC CXD2536R	
IC402	8-759-425-30	IC HM5116400BTS7	
IC404	8-759-079-61	IC TC74VHC74FS(EL)	
IC405	8-759-096-87	IC TC7WU04FU(TE12R)	
IC406	8-759-288-55	IC LC72130M-TLM	
IC407	8-752-371-17	IC CXD2536R	
IC408	8-759-329-31	IC MSM514400CSJADR1-K	
IC409	8-759-326-71	IC CXD8517Q	
IC410	8-759-444-20	IC LC89051V-TLM	
IC411	8-759-049-55	IC SN74HC00APW-E20	
IC412	8-759-330-78	IC CS8402A-CS-E1	
IC413	8-759-083-94	IC TC7W74FU	
IC501	8-759-352-63	IC CXD8566M	
IC502	8-759-352-59	IC CXA8054M	
IC503	8-759-362-47	IC CXD8567AM	
IC504	8-759-252-90	IC TLV2362IPW-ELM1500	
IC505	8-759-252-90	IC TLV2362IPW-ELM1500	
IC506	8-759-083-94	IC TC7W74FU	
IC507	8-759-822-99	IC L88MS05T-FA	
IC901	8-759-425-27	IC CXD8633Q	

Ref. No.	Part No.	Description	Remark
		< COIL >	
L301	1-410-375-11	INDUCTOR CHIP 3.3uH	
L302	1-410-375-11	INDUCTOR CHIP 3.3uH	
L303	1-410-375-11	INDUCTOR CHIP 3.3uH	
L304	1-410-375-11	INDUCTOR CHIP 3.3uH	
L305	1-410-375-11	INDUCTOR CHIP 3.3uH	
L306	1-410-375-11	INDUCTOR CHIP 3.3uH	
L307	1-410-375-11	INDUCTOR CHIP 3.3uH	
L401	1-410-375-11	INDUCTOR CHIP 3.3uH	
L402	1-410-375-11	INDUCTOR CHIP 3.3uH	
L403	1-410-375-11	INDUCTOR CHIP 3.3uH	
L404	1-410-375-11	INDUCTOR CHIP 3.3uH	
L405	1-410-375-11	INDUCTOR CHIP 3.3uH	
L406	1-414-235-11	INDUCTOR, FERRITE BEAD	
L407	1-216-295-91	CONDUCTOR, CHIP (2012)	
L408	1-412-348-41	INDUCTOR 47uH	
L409	1-216-295-91	CONDUCTOR, CHIP (2012)	
L410	1-410-736-41	INDUCTOR CHIP 0.39uH	
L411	1-414-235-11	INDUCTOR, FERRITE BEAD	
L412	1-414-235-11	INDUCTOR, FERRITE BEAD	
L413	1-414-235-11	INDUCTOR, FERRITE BEAD	
L414	1-414-235-11	INDUCTOR, FERRITE BEAD	
L416	1-414-235-11	INDUCTOR, FERRITE BEAD	
L417	1-414-235-11	INDUCTOR, FERRITE BEAD	
L418	1-414-235-11	INDUCTOR, FERRITE BEAD	
L419	1-414-235-11	INDUCTOR, FERRITE BEAD	
L501	1-410-375-11	INDUCTOR CHIP 3.3uH	
L502	1-410-375-11	INDUCTOR CHIP 3.3uH	
L503	1-412-348-41	INDUCTOR 47uH	
L504	1-412-348-41	INDUCTOR 47uH	
L505	1-412-348-41	INDUCTOR 47uH	
L506	1-410-375-11	INDUCTOR CHIP 3.3uH	
L901	1-410-375-11	INDUCTOR CHIP 3.3uH	
L902	1-414-235-11	INDUCTOR, FERRITE BEAD	
L903	1-414-235-11	INDUCTOR, FERRITE BEAD	
L904	1-414-235-11	INDUCTOR, FERRITE BEAD	
L905	1-414-235-11	INDUCTOR, FERRITE BEAD	
L906	1-414-235-11	INDUCTOR, FERRITE BEAD	
		< TRANSISTOR >	
Q401	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q402	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q403	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q404	8-729-027-23	TRANSISTOR DTA114EKA-T146	
		< RESISTOR >	
R301	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
R302	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
R303	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
R304	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
R305	1-216-073-00	METAL CHIP 10K 5% 1/10W	

Ref. No.	Part No.	Description			Remark
R306	1-216-073-00	METAL CHIP	10K	5%	1/10W
R307	1-216-073-00	METAL CHIP	10K	5%	1/10W
R308	1-216-073-00	METAL CHIP	10K	5%	1/10W
R309	1-216-073-00	METAL CHIP	10K	5%	1/10W
R310	1-216-073-00	METAL CHIP	10K	5%	1/10W
R311	1-216-073-00	METAL CHIP	10K	5%	1/10W
R312	1-216-033-00	METAL CHIP	220	5%	1/10W
R314	1-216-073-00	METAL CHIP	10K	5%	1/10W
R316	1-216-073-00	METAL CHIP	10K	5%	1/10W
R317	1-216-073-00	METAL CHIP	10K	5%	1/10W
R318	1-216-073-00	METAL CHIP	10K	5%	1/10W
R319	1-216-073-00	METAL CHIP	10K	5%	1/10W
R320	1-216-073-00	METAL CHIP	10K	5%	1/10W
R321	1-216-073-00	METAL CHIP	10K	5%	1/10W
R322	1-216-073-00	METAL CHIP	10K	5%	1/10W
R323	1-216-073-00	METAL CHIP	10K	5%	1/10W
R324	1-216-073-00	METAL CHIP	10K	5%	1/10W
R325	1-216-073-00	METAL CHIP	10K	5%	1/10W
R326	1-216-073-00	METAL CHIP	10K	5%	1/10W
R327	1-216-073-00	METAL CHIP	10K	5%	1/10W
R330	1-216-073-00	METAL CHIP	10K	5%	1/10W
R331	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R332	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R333	1-216-021-00	METAL CHIP	68	5%	1/10W
R334	1-216-021-00	METAL CHIP	68	5%	1/10W
R335	1-216-073-00	METAL CHIP	10K	5%	1/10W
R336	1-216-073-00	METAL CHIP	10K	5%	1/10W
R337	1-216-073-00	METAL CHIP	10K	5%	1/10W
R338	1-216-073-00	METAL CHIP	10K	5%	1/10W
R339	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R340	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R341	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R342	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R343	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R344	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R345	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R346	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R347	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R348	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R349	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R350	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R351	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R352	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R353	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R354	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R355	1-216-073-00	METAL CHIP	10K	5%	1/10W
R356	1-216-073-00	METAL CHIP	10K	5%	1/10W
R357	1-216-073-00	METAL CHIP	10K	5%	1/10W
R358	1-216-073-00	METAL CHIP	10K	5%	1/10W
R359	1-216-073-00	METAL CHIP	10K	5%	1/10W
R360	1-216-073-00	METAL CHIP	10K	5%	1/10W
R361	1-216-073-00	METAL CHIP	10K	5%	1/10W
R362	1-216-073-00	METAL CHIP	10K	5%	1/10W
R363	1-216-073-00	METAL CHIP	10K	5%	1/10W
R364	1-216-073-00	METAL CHIP	10K	5%	1/10W
R365	1-216-073-00	METAL CHIP	10K	5%	1/10W
R366	1-216-073-00	METAL CHIP	10K	5%	1/10W
R367	1-216-073-00	METAL CHIP	10K	5%	1/10W
R368	1-216-073-00	METAL CHIP	10K	5%	1/10W
R369	1-216-073-00	METAL CHIP	10K	5%	1/10W
R370	1-216-073-00	METAL CHIP	10K	5%	1/10W
R371	1-216-073-00	METAL CHIP	10K	5%	1/10W
R372	1-216-073-00	METAL CHIP	10K	5%	1/10W
R373	1-216-073-00	METAL CHIP	10K	5%	1/10W
R374	1-216-073-00	METAL CHIP	10K	5%	1/10W
R375	1-216-073-00	METAL CHIP	10K	5%	1/10W
R376	1-216-073-00	METAL CHIP	10K	5%	1/10W
R377	1-216-073-00	METAL CHIP	10K	5%	1/10W
R378	1-216-073-00	METAL CHIP	10K	5%	1/10W
R379	1-216-073-00	METAL CHIP	10K	5%	1/10W
R380	1-216-073-00	METAL CHIP	10K	5%	1/10W
R381	1-216-073-00	METAL CHIP	10K	5%	1/10W
R382	1-216-295-91	CONDUCTOR, CHIP(2012)			
R383	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R384	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R385	1-216-033-00	METAL CHIP	220	5%	1/10W
R386	1-216-033-00	METAL CHIP	220	5%	1/10W
R387	1-216-073-00	METAL CHIP	10K	5%	1/10W
R388	1-216-073-00	METAL CHIP	10K	5%	1/10W
R389	1-216-073-00	METAL CHIP	10K	5%	1/10W
R390	1-216-073-00	METAL CHIP	10K	5%	1/10W
R391	1-216-073-00	METAL CHIP	10K	5%	1/10W
R392	1-216-073-00	METAL CHIP	10K	5%	1/10W
R393	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R394	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R397	1-216-033-00	METAL CHIP	220	5%	1/10W
R398	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R399	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R401	1-216-033-00	METAL CHIP	220	5%	1/10W
R402	1-216-033-00	METAL CHIP	220	5%	1/10W
R403	1-216-033-00	METAL CHIP	220	5%	1/10W
R404	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R405	1-216-073-00	METAL CHIP	10K	5%	1/10W
R406	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R407	1-216-073-00	METAL CHIP	10K	5%	1/10W
R409	1-216-073-00	METAL CHIP	10K	5%	1/10W
R410	1-216-073-00	METAL CHIP	10K	5%	1/10W
R411	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R412	1-216-033-00	METAL CHIP	220	5%	1/10W
R413	1-216-033-00	METAL CHIP	220	5%	1/10W
R414	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R415	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R416	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R417	1-216-065-00	METAL CHIP	4.7K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R418	1-216-033-00	METAL CHIP	220	5%	1/10W
R419	1-216-033-00	METAL CHIP	220	5%	1/10W
R420	1-216-033-00	METAL CHIP	220	5%	1/10W
R421	1-216-073-00	METAL CHIP	10K	5%	1/10W
R422	1-216-033-00	METAL CHIP	220	5%	1/10W
R423	1-216-033-00	METAL CHIP	220	5%	1/10W
R424	1-216-033-00	METAL CHIP	220	5%	1/10W
R425	1-216-025-91	METAL GLAZE	100	5%	1/10W
R426	1-216-025-91	METAL GLAZE	100	5%	1/10W
R427	1-216-025-91	METAL GLAZE	100	5%	1/10W
R428	1-216-025-91	METAL GLAZE	100	5%	1/10W
R429	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R430	1-216-073-00	METAL CHIP	10K	5%	1/10W
R431	1-216-081-00	METAL CHIP	22K	5%	1/10W
R432	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R433	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R434	1-216-029-00	METAL CHIP	150	5%	1/10W
R435	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R436	1-216-073-00	METAL CHIP	10K	5%	1/10W
R437	1-216-025-91	METAL GLAZE	100	5%	1/10W
R438	1-216-033-00	METAL CHIP	220	5%	1/10W
R439	1-216-017-91	METAL GLAZE	47	5%	1/10W
R440	1-216-017-91	METAL GLAZE	47	5%	1/10W
R441	1-216-041-00	METAL CHIP	470	5%	1/10W
R442	1-216-073-00	METAL CHIP	10K	5%	1/10W
R443	1-216-073-00	METAL CHIP	10K	5%	1/10W
R444	1-216-073-00	METAL CHIP	10K	5%	1/10W
R445	1-216-073-00	METAL CHIP	10K	5%	1/10W
R446	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R447	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R448	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R449	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R450	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R451	1-216-073-00	METAL CHIP	10K	5%	1/10W
R452	1-216-073-00	METAL CHIP	10K	5%	1/10W
R453	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R454	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R501	1-216-033-00	METAL CHIP	220	5%	1/10W
R502	1-216-081-00	METAL CHIP	22K	5%	1/10W
R503	1-216-081-00	METAL CHIP	22K	5%	1/10W
R504	1-216-081-00	METAL CHIP	22K	5%	1/10W
R505	1-216-081-00	METAL CHIP	22K	5%	1/10W
R508	1-216-077-00	METAL CHIP	15K	5%	1/10W
R509	1-216-077-00	METAL CHIP	15K	5%	1/10W
R510	1-216-077-00	METAL CHIP	15K	5%	1/10W
R511	1-216-077-00	METAL CHIP	15K	5%	1/10W
R512	1-216-081-00	METAL CHIP	22K	5%	1/10W
R513	1-216-081-00	METAL CHIP	22K	5%	1/10W
R514	1-216-081-00	METAL CHIP	22K	5%	1/10W
R515	1-216-081-00	METAL CHIP	22K	5%	1/10W
R516	1-216-053-00	METAL CHIP	1.5K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R517	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R518	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R519	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R520	1-216-033-00	METAL CHIP	220	5%	1/10W
R521	1-216-033-00	METAL CHIP	220	5%	1/10W
R524	1-216-033-00	METAL CHIP	220	5%	1/10W
R525	1-216-017-91	METAL GLAZE	47	5%	1/10W
R526	1-216-017-91	METAL GLAZE	47	5%	1/10W
R527	1-216-017-91	METAL GLAZE	47	5%	1/10W
R528	1-216-085-00	METAL CHIP	33K	5%	1/10W
R529	1-216-085-00	METAL CHIP	33K	5%	1/10W
R530	1-216-073-00	METAL CHIP	10K	5%	1/10W
R531	1-216-073-00	METAL CHIP	10K	5%	1/10W
R532	1-216-295-91	CONDUCTOR, CHIP(2012)			
R901	1-216-025-91	METAL GLAZE	100	5%	1/10W
R902	1-216-025-91	METAL GLAZE	100	5%	1/10W
R903	1-216-025-91	METAL GLAZE	100	5%	1/10W
R904	1-216-025-91	METAL GLAZE	100	5%	1/10W
R905	1-216-025-91	METAL GLAZE	100	5%	1/10W
R906	1-216-025-91	METAL GLAZE	100	5%	1/10W
R907	1-216-025-91	METAL GLAZE	100	5%	1/10W
R908	1-216-025-91	METAL GLAZE	100	5%	1/10W
R909	1-216-025-91	METAL GLAZE	100	5%	1/10W
R910	1-216-033-00	METAL CHIP	220	5%	1/10W
R911	1-216-033-00	METAL CHIP	220	5%	1/10W
R912	1-216-033-00	METAL CHIP	220	5%	1/10W
		< SWITCH >			
S301	1-692-296-11	SWITCH, KEY BOARD (RESET)			
		< VIBRATOR >			
X301	1-767-142-11	VIBRATOR, CERAMIC (8.6MHz)			

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Ref. No.	Part No.	Description			Remark
*	A-4699-172-A	DISP BOARD, COMPLETE *********************			
*	4-956-134-01	HOLDER (FL TUBE)			
		< CAPACITOR >			
C601	1-124-907-11	ELECT	10uF	20%	50V
C602	1-164-159-11	CERAMIC	0.1uF		50V
C603	1-164-159-11	CERAMIC	0.1uF		50V
C604	1-164-159-11	CERAMIC	0.1uF		50V
C605	1-164-159-11	CERAMIC	0.1uF		50V
C606	1-104-664-11	ELECT	47uF	20%	25V
C607	1-162-282-31	CERAMIC	100PF	10%	50V
C608	1-162-282-31	CERAMIC	100PF	10%	50V
C609	1-162-282-31	CERAMIC	100PF	10%	50V
C610	1-162-282-31	CERAMIC	100PF	10%	50V
C611	1-162-294-31	CERAMIC	0.001uF	10%	50V

Ref. No.	Part No.	Description				Remark
C612	1-162-302-11	CERAMIC	0.0022uF	30%	16V	
C613	1-162-302-11	CERAMIC	0.0022uF	30%	16V	
C614	1-162-292-31	CERAMIC	680PF	10%	50V	
C615	1-162-292-31	CERAMIC	680PF	10%	50V	
		< CONNECTOR >				
CN602	1-770-168-11	CONNECTOR, FFC/FPC 16P				
		< FLUORESCENT INDICATOR >				
FL601	1-517-542-11	INDICATOR TUBE, FLUORESCENT				
		< IC >				
IC601	8-759-297-23	IC M66004M8FP				
		< TRANSISTOR >				
Q601	8-729-038-21	TRANSISTOR RT1P434S-TP				
Q602	8-729-038-21	TRANSISTOR RT1P434S-TP				
Q603	8-729-422-57	TRANSISTOR UN4111				
Q604	8-729-620-05	TRANSISTOR 2SC2603-EF				
		< RESISTOR >				
R601	1-249-429-11	CARBON	10K	5%	1/4W	
R607	1-249-429-11	CARBON	10K	5%	1/4W	
R608	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R609	1-247-843-11	CARBON	3.3K	5%	1/4W	
R610	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R611	1-249-429-11	CARBON	10K	5%	1/4W	
R612	1-249-435-11	CARBON	33K	5%	1/4W	
R613	1-249-433-11	CARBON	22K	5%	1/4W	
R614	1-249-430-11	CARBON	12K	5%	1/4W	
R615	1-249-435-11	CARBON	33K	5%	1/4W	
R616	1-249-435-11	CARBON	33K	5%	1/4W	
R617	1-247-807-31	CARBON	100	5%	1/4W	
R618	1-247-807-31	CARBON	100	5%	1/4W	
R619	1-247-807-31	CARBON	100	5%	1/4W	
R620	1-247-807-31	CARBON	100	5%	1/4W	
R621	1-249-397-11	CARBON	22	5%	1/4W	F
R622	1-249-397-11	CARBON	22	5%	1/4W	F
R623	1-249-401-11	CARBON	47	5%	1/4W	F
R624	1-249-401-11	CARBON	47	5%	1/4W	F
R625	1-249-409-11	CARBON	220	5%	1/4W	F
R626	1-249-409-11	CARBON	220	5%	1/4W	F
R627	1-249-429-11	CARBON	10K	5%	1/4W	
R628	1-249-429-11	CARBON	10K	5%	1/4W	
R629	1-249-441-11	CARBON	100K	5%	1/4W	
R630	1-249-433-11	CARBON	22K	5%	1/4W	
		< ROTARY ENCODER >				
RE601	1-467-818-11	ENCODER, ROTARY (AMS (PUSH ENTER))				

Ref. No.	Part No.	Description				Remark
		< SWITCH >				
S601	1-762-033-11	SWITCH, TACTILE (ILLUMINATED)(EJECT ⏏)				
S602	1-554-303-21	SWITCH, TACTILE (A. MODE)				
S603	1-554-303-21	SWITCH, TACTILE (DISPLAY)				
S604	1-554-303-21	SWITCH, TACTILE (REHERSAL)				
S605	1-554-303-21	SWITCH, TACTILE (ENTER/YES)				
S606	1-554-303-21	SWITCH, TACTILE (EDIT/NO)				
S607	1-554-303-21	SWITCH, TACTILE (SINGLE)				

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Ref. No.	Part No.	Description				Remark
*	A-4699-179-A	DUP IN BOARD, COMPLETE ***********************				
		< CAPACITOR >				
C959	1-126-395-11	ELECT	22uF	20%	16V	
C960	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C961	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C962	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C963	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
		< CONNECTOR >				
CN952	1-778-334-11	PIN, CONNECTOR (PC BOARD) 13P				
		< DIODE >				
D955	8-719-800-76	DIODE 1SS226				
D956	8-719-800-76	DIODE 1SS226				
D957	8-719-800-76	DIODE 1SS226				
D958	8-719-800-76	DIODE 1SS226				
D959	8-719-800-76	DIODE 1SS226				
D960	8-719-800-76	DIODE 1SS226				
D961	8-719-800-76	DIODE 1SS226				
D962	8-719-800-76	DIODE 1SS226				
		< FERRITE BEAD >				
FB965	1-236-101-11	ENCAPSULATED COMPONENT				
FB966	1-236-101-11	ENCAPSULATED COMPONENT				
FB967	1-236-101-11	ENCAPSULATED COMPONENT				
FB968	1-236-101-11	ENCAPSULATED COMPONENT				
FB969	1-236-101-11	ENCAPSULATED COMPONENT				
FB970	1-236-101-11	ENCAPSULATED COMPONENT				
FB971	1-236-101-11	ENCAPSULATED COMPONENT				
FB972	1-236-101-11	ENCAPSULATED COMPONENT				
FB973	1-236-101-11	ENCAPSULATED COMPONENT				
FB974	1-236-101-11	ENCAPSULATED COMPONENT				
FB975	1-236-101-11	ENCAPSULATED COMPONENT				
FB976	1-236-101-11	ENCAPSULATED COMPONENT				
		< IC >				
IC953	8-759-177-56	IC AM26C32CNS				
IC954	8-759-030-26	IC MC34050ML				
IC956	8-759-066-40	IC PQ05RH11				

DUP IN | DUP OUT

Ref. No.	Part No.	Description			Remark
		< JACK >			
J952	1-764-392-11	CONNECTOR (D-SUB) 25P (DIRECT DUPLICATION LINK (IN))			
		< COIL >			
L953	1-410-375-11	INDUCTOR CHIP	3.3uH		
L954	1-410-375-11	INDUCTOR CHIP	3.3uH		
L956	1-414-235-11	INDUCTOR, FERRITE BEAD			
L957	1-414-235-11	INDUCTOR, FERRITE BEAD			
L958	1-414-235-11	INDUCTOR, FERRITE BEAD			
		< TRANSISTOR >			
Q952	8-729-900-53	TRANSISTOR DTC114EK			
		< RESISTOR >			
R964	1-216-073-00	METAL CHIP	10K	5%	1/10W
R965	1-216-025-91	METAL GLAZE	100	5%	1/10W
R966	1-216-025-91	METAL GLAZE	100	5%	1/10W
R967	1-216-025-91	METAL GLAZE	100	5%	1/10W
R968	1-216-025-91	METAL GLAZE	100	5%	1/10W
R969	1-216-025-91	METAL GLAZE	100	5%	1/10W
R970	1-216-025-91	METAL GLAZE	100	5%	1/10W
R971	1-216-025-91	METAL GLAZE	100	5%	1/10W
R972	1-216-025-91	METAL GLAZE	100	5%	1/10W
R973	1-216-001-00	METAL CHIP	10	5%	1/10W
R974	1-216-001-00	METAL CHIP	10	5%	1/10W
R975	1-216-001-00	METAL CHIP	10	5%	1/10W
R976	1-216-001-00	METAL CHIP	10	5%	1/10W
R979	1-216-026-00	METAL GLAZE	110	5%	1/10W
R980	1-216-026-00	METAL GLAZE	110	5%	1/10W
R981	1-216-026-00	METAL GLAZE	110	5%	1/10W
R982	1-216-026-00	METAL GLAZE	110	5%	1/10W
R985	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R988	1-216-033-00	METAL CHIP	220	5%	1/10W
R989	1-216-033-00	METAL CHIP	220	5%	1/10W
R990	1-216-033-00	METAL CHIP	220	5%	1/10W
R991	1-216-033-00	METAL CHIP	220	5%	1/10W

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Ref. No.	Part No.	Description			Remark
*	A-4699-180-A	DUP OUT BOARD, COMPLETE			
		< CAPACITOR >			
C951	1-126-395-11	ELECT	22uF	20%	16V
C952	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C953	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C954	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C955	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C969	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C970	1-163-038-91	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN951	1-778-334-11	PIN, CONNECTOR (PC BOARD) 13P			
		< DIODE >			
D951	8-719-800-76	DIODE 1SS226			
D952	8-719-800-76	DIODE 1SS226			
D953	8-719-800-76	DIODE 1SS226			
D954	8-719-800-76	DIODE 1SS226			
		< FERRITE BEAD >			
FB951	1-236-101-11	ENCAPSULATED COMPONENT			
FB952	1-236-101-11	ENCAPSULATED COMPONENT			
FB953	1-236-101-11	ENCAPSULATED COMPONENT			
FB954	1-236-101-11	ENCAPSULATED COMPONENT			
FB955	1-236-101-11	ENCAPSULATED COMPONENT			
FB956	1-236-101-11	ENCAPSULATED COMPONENT			
FB957	1-236-101-11	ENCAPSULATED COMPONENT			
FB958	1-236-101-11	ENCAPSULATED COMPONENT			
FB959	1-236-101-11	ENCAPSULATED COMPONENT			
FB960	1-236-101-11	ENCAPSULATED COMPONENT			
FB961	1-236-101-11	ENCAPSULATED COMPONENT			
FB962	1-236-101-11	ENCAPSULATED COMPONENT			
		< IC >			
IC951	8-759-177-57	IC AM26C31CNS			
IC952	8-759-030-26	IC MC34050ML			
IC955	8-759-066-40	IC PQ05RH11			
		< JACK >			
J951	1-764-392-11	CONNECTOR (D-SUB) 25P (DIRECT DUPLICATION LINK (OUT))			
		< COIL >			
L951	1-410-375-11	INDUCTOR CHIP	3.3uH		
L952	1-410-375-11	INDUCTOR CHIP	3.3uH		
L955	1-414-235-11	INDUCTOR, FERRITE BEAD			
		< TRANSISTOR >			
Q951	8-729-900-53	TRANSISTOR DTC114EK			
		< RESISTOR >			
R951	1-216-073-00	METAL CHIP	10K	5%	1/10W
R952	1-216-025-91	METAL GLAZE	100	5%	1/10W
R953	1-216-025-91	METAL GLAZE	100	5%	1/10W
R954	1-216-025-91	METAL GLAZE	100	5%	1/10W
R955	1-216-025-91	METAL GLAZE	100	5%	1/10W
R956	1-216-001-00	METAL CHIP	10	5%	1/10W
R957	1-216-001-00	METAL CHIP	10	5%	1/10W
R958	1-216-001-00	METAL CHIP	10	5%	1/10W
R959	1-216-001-00	METAL CHIP	10	5%	1/10W
R960	1-216-001-00	METAL CHIP	10	5%	1/10W

Ref. No.	Part No.	Description			Remark
R961	1-216-001-00	METAL CHIP	10	5%	1/10W
R962	1-216-001-00	METAL CHIP	10	5%	1/10W
R963	1-216-001-00	METAL CHIP	10	5%	1/10W
R977	1-216-026-00	METAL GLAZE	110	5%	1/10W
R978	1-216-026-00	METAL GLAZE	110	5%	1/10W
R983	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R984	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R986	1-216-033-00	METAL CHIP	220	5%	1/10W
R987	1-216-033-00	METAL CHIP	220	5%	1/10W

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Ref. No.	Part No.	Description			Remark
*	1-662-428-11	HP BOARD ********			
		< CAPACITOR >			
C841	1-164-159-11	CERAMIC	0.1uF		50V
C842	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
* CN811	1-564-337-61	PIN, CONNECTOR 3P			
* CN818	1-568-955-11	PIN, CONNECTOR 6P			
		< DIODE >			
D807	8-719-109-85	DIODE RD5.1ES-B2			
D808	8-719-109-85	DIODE RD5.1ES-B2			
		< FERRITE BEAD >			
FB809	1-236-163-11	ENCAPSULATED COMPONENT			
FB810	1-236-163-11	ENCAPSULATED COMPONENT			
FB811	1-236-163-11	ENCAPSULATED COMPONENT			
FB812	1-236-058-21	ENCAPSULATED COMPONENT			
FB813	1-236-058-21	ENCAPSULATED COMPONENT			
		< JACK >			
J805	1-770-306-11	JACK (LARGE TYPE)(PHONES)			
J806	1-778-314-11	CONNECTOR, DIN (KEY BOARD)			
		< COIL >			
L802	1-412-473-21	INDUCTOR	0uH		
L803	1-412-473-21	INDUCTOR	0uH		
L804	1-424-122-11	FILTER, NOISE			
L805	1-424-122-11	FILTER, NOISE			
		< VARIABLE RESISTOR >			
RV805	1-241-031-11	RES, VAR, CARBON 1K/1K (PHONES)			

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Ref. No.	Part No.	Description			Remark
*	A-4699-175-A	JACK BOARD, COMPLETE *********************			
		< CAPACITOR >			
C803	1-104-664-11	ELECT	47uF	20%	25V
C804	1-104-664-11	ELECT	47uF	20%	25V
C805	1-104-665-11	ELECT	100uF	20%	16V
C806	1-104-665-11	ELECT	100uF	20%	16V
C807	1-104-664-11	ELECT	47uF	20%	25V
C808	1-104-664-11	ELECT	47uF	20%	25V
C817	1-104-664-11	ELECT	47uF	20%	25V
C818	1-104-664-11	ELECT	47uF	20%	25V
C819	1-104-664-11	ELECT	47uF	20%	25V
C820	1-104-664-11	ELECT	47uF	20%	25V
C821	1-126-941-11	ELECT	470uF	20%	16V
C822	1-126-941-11	ELECT	470uF	20%	16V
C823	1-104-665-11	ELECT	100uF	20%	16V
C824	1-104-665-11	ELECT	100uF	20%	16V
C831	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C832	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C837	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C838	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C843	1-124-120-11	ELECT	220uF	20%	25V
C883	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C884	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C889	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C890	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C893	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C894	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C895	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
		< CONNECTOR >			
* CN802	1-695-241-31	PIN, CONNECTOR (PC BOARD) 8P			
* CN814	1-569-495-11	SOCKET, CONNECTOR 9P			
* CN816	1-569-397-11	SOCKET, CONNECTOR 4P			
		< DIODE >			
D804	8-719-210-39	DIODE EC10QS-04			
		< GROUND TERMINAL >			
EB801	1-537-770-21	TERMINAL BOARD, GROUND			
		< FERRITE BEAD >			
FB875	1-236-058-21	ENCAPSULATED COMPONENT			
FB876	1-236-058-21	ENCAPSULATED COMPONENT			
FB877	1-236-058-21	ENCAPSULATED COMPONENT			
		< IC >			
IC802	8-759-636-55	IC M5218AFP			
IC803	8-759-636-55	IC M5218AFP			

JACK KEY MOTOR PIO

Ref. No.	Part No.	Description				Remark
		< JACK >				
J803	1-770-162-11	JACK, PIN 2P (IEC958)				
		< TRANSISTOR >				
Q807	8-729-023-22	TRANSISTOR 2SD2114K				
Q808	8-729-023-22	TRANSISTOR 2SD2114K				
Q809	8-729-027-23	TRANSISTOR DTA114EKA-T146				
Q810	8-729-900-53	TRANSISTOR DTC114EK				
Q811	8-729-900-53	TRANSISTOR DTC114EK				
		< RESISTOR >				
R801	1-216-045-00	METAL CHIP	680	5%	1/10W	
R802	1-216-045-00	METAL CHIP	680	5%	1/10W	
R803	1-216-097-91	METAL GLAZE	100K	5%	1/10W	
R804	1-216-097-91	METAL GLAZE	100K	5%	1/10W	
R807	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R808	1-216-017-91	METAL GLAZE	47	5%	1/10W	
R809	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R810	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R811	1-216-097-91	METAL GLAZE	100K	5%	1/10W	
R812	1-216-097-91	METAL GLAZE	100K	5%	1/10W	
R813	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R814	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R815	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R816	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R818	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R819	1-216-001-00	METAL CHIP	10	5%	1/10W	
R820	1-216-001-00	METAL CHIP	10	5%	1/10W	
R821	1-216-001-00	METAL CHIP	10	5%	1/10W	
R822	1-216-001-00	METAL CHIP	10	5%	1/10W	
R823	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R824	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R825	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R826	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R835	1-216-041-00	METAL CHIP	470	5%	1/10W	
R836	1-216-041-00	METAL CHIP	470	5%	1/10W	
R837	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R838	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R840	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R841	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R842	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R871	1-216-022-00	METAL CHIP	75	5%	1/10W	
R872	1-216-022-00	METAL CHIP	75	5%	1/10W	
R873	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R874	1-216-013-00	METAL CHIP	33	5%	1/10W	
R878	1-216-025-91	METAL GLAZE	100	5%	1/10W	
		< VARIABLE RESISTOR >				
RV801	1-241-783-11	RES, ADJ, CARBON 2.2K (RECORD CH-1(L))				
RV802	1-241-783-11	RES, ADJ, CARBON 2.2K (RECORD CH-2(R))				
RV803	1-230-720-11	RES, ADJ, CARBON 4.7K (PLAYBACK CH-1(L))				
RV804	1-230-720-11	RES, ADJ, CARBON 4.7K (PLAYBACK CH-2(R))				

Ref. No.	Part No.	Description				Remark
		< SWITCH >				
S801	1-692-457-11	SWITCH, SLIDE (MODE, MONO, STEREO)				
		< TRANSFORMER >				
T873	1-409-594-11	COIL (WITH CORE)				

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Ref. No.	Part No.	Description				Remark
*	1-662-427-11	KEY BOARD *********				
		< CONNECTOR >				
* CN604	1-564-340-00	PIN, CONNECTOR 6P				
		< RESISTOR >				
R602	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R603	1-247-843-11	CARBON	3.3K	5%	1/4W	
R604	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R605	1-249-429-11	CARBON	10K	5%	1/4W	
		< SWITCH >				
S608	1-554-303-21	SWITCH, TACTILE (◀◀)				
S609	1-554-303-21	SWITCH, TACTILE (▶▶)				
S610	1-762-036-11	SWITCH, TACTILE (ILLUMINATED)(REC ●)				
S611	1-572-607-31	SWITCH, PUSH (1 KEY)(CUE STDBY I▶I)				
S612	1-572-609-61	SWITCH, PUSH (1 KEY)(PLAY/PAUSE ▶II)				
S613	1-762-035-11	SWITCH, TACTILE (ILLUMINATED)(STOP ■)				

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Ref. No.	Part No.	Description				Remark
*	1-653-412-11	MOTOR BOARD ***********				
		< CAPACITOR >				
C199	1-164-159-11	CERAMIC	0.1uF		50V	
		< CONNECTOR >				
* CN191	1-568-944-11	PIN, CONNECTOR 6P				
CN192	1-770-011-41	CONNECTOR, BOARD TO BOARD 4P				

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Ref. No.	Part No.	Description				Remark
*	A-4699-177-A	PIO BOARD, COMPLETE ********************				
		< CAPACITOR >				
C701	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C702	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C703	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C704	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C705	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C706	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	

Ref. No.	Part No.	Description			Remark
C707	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C708	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C709	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C710	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C711	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C712	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C713	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C714	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C715	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C716	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C717	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C718	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C719	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C722	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C723	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C724	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C725	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C726	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C727	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C728	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C730	1-124-779-00	ELECT CHIP	10uF	20%	16V
C731	1-126-193-11	ELECT	1uF	20%	50V
C732	1-126-193-11	ELECT	1uF	20%	50V
C733	1-126-193-11	ELECT	1uF	20%	50V
C734	1-126-193-11	ELECT	1uF	20%	50V
		< CONNECTOR >			
CN702	1-770-653-11	CONNECTOR, FFC/FPC 25P			
* CN703	1-564-341-11	PIN, CONNECTOR 7P			
CN705	1-778-334-11	PIN, CONNECTOR (PC BOARD) 13P			
		< DIODE >			
D701	8-719-800-76	DIODE 1SS226			
D702	8-719-800-76	DIODE 1SS226			
		< FERRITE BEAD >			
FB708	1-236-163-11	ENCAPSULATED COMPONENT			
FB709	1-236-129-11	ENCAPSULATED COMPONENT			
FB710	1-236-129-11	ENCAPSULATED COMPONENT			
		< IC >			
IC701	8-759-425-31	IC MC145583VFEL			
IC702	8-759-030-26	IC MC34050ML			
IC703	8-759-242-70	IC TC7WU04F			
		< JACK >			
J702	1-764-392-11	CONNECTOR (D-SUB) 25P (REMOTE (25P))			
		< TRANSISTOR >			
Q701	8-729-027-23	TRANSISTOR DTA114EKA-T146			

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R701	1-216-073-00	METAL CHIP	10K	5%	1/10W
R702	1-216-073-00	METAL CHIP	10K	5%	1/10W
R703	1-216-073-00	METAL CHIP	10K	5%	1/10W
R704	1-216-073-00	METAL CHIP	10K	5%	1/10W
R705	1-216-073-00	METAL CHIP	10K	5%	1/10W
R706	1-216-073-00	METAL CHIP	10K	5%	1/10W
R707	1-216-073-00	METAL CHIP	10K	5%	1/10W
R708	1-216-073-00	METAL CHIP	10K	5%	1/10W
R709	1-216-073-00	METAL CHIP	10K	5%	1/10W
R710	1-216-073-00	METAL CHIP	10K	5%	1/10W
R711	1-216-073-00	METAL CHIP	10K	5%	1/10W
R712	1-216-073-00	METAL CHIP	10K	5%	1/10W
R713	1-216-073-00	METAL CHIP	10K	5%	1/10W
R714	1-216-073-00	METAL CHIP	10K	5%	1/10W
R715	1-216-073-00	METAL CHIP	10K	5%	1/10W
R716	1-216-073-00	METAL CHIP	10K	5%	1/10W
R717	1-216-073-00	METAL CHIP	10K	5%	1/10W
R718	1-216-073-00	METAL CHIP	10K	5%	1/10W
R719	1-216-073-00	METAL CHIP	10K	5%	1/10W
R720	1-216-073-00	METAL CHIP	10K	5%	1/10W
R721	1-216-073-00	METAL CHIP	10K	5%	1/10W
R722	1-216-073-00	METAL CHIP	10K	5%	1/10W
R724	1-216-073-00	METAL CHIP	10K	5%	1/10W
R725	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R726	1-216-033-00	METAL CHIP	220	5%	1/10W
R727	1-216-033-00	METAL CHIP	220	5%	1/10W
R728	1-216-025-91	METAL GLAZE	100	5%	1/10W
R729	1-216-025-91	METAL GLAZE	100	5%	1/10W
R730	1-216-001-00	METAL CHIP	10	5%	1/10W
R731	1-216-001-00	METAL CHIP	10	5%	1/10W
R732	1-216-026-00	METAL GLAZE	110	5%	1/10W

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Ref. No.	Part No.	Description			Remark
*	A-4699-171-A	POWER BOARD, COMPLETE			
		**********************			
	1-533-293-11	FUSE HOLDER			
	1-555-724-00	WIRE, GROUND			
*	4-363-146-00	HEAT SINK, V.OUT			
*	4-363-146-71	HEAT SINK, V.OUT			
*	4-942-204-01	PLATE, GROUND			
	7-682-546-09	SCREW +B 3X5			
	7-685-871-01	SCREW +BVTT 3X6 (S)			
		< CAPACITOR >			
⚠C1	1-113-925-11	CERAMIC	0.01uF	20%	250V
⚠C2	1-113-925-11	CERAMIC	0.01uF	20%	250V
⚠C3	1-113-920-11	CERAMIC	0.0022uF	20%	250V
⚠C4	1-113-920-11	CERAMIC	0.0022uF	20%	250V
⚠C5	1-113-920-11	CERAMIC	0.0022uF	20%	250V

POWER

Ref. No.	Part No.	Description			Remark
⚠C6	1-113-920-11	CERAMIC	0.0022uF	20%	250V
C11	1-161-494-00	CERAMIC	0.022uF		25V
C12	1-124-572-11	ELECT	100uF	20%	63V
C13	1-164-159-11	CERAMIC	0.1uF		50V
C14	1-126-950-11	ELECT	330uF	20%	35V
C16	1-126-941-11	ELECT	470uF	20%	25V
C17	1-126-941-11	ELECT	470uF	20%	25V
C20	1-104-664-11	ELECT	47uF	20%	25V
C21	1-104-664-11	ELECT	47uF	20%	25V
C22	1-117-187-11	ELECT	39000uF	99%	16V
C23	1-124-907-11	ELECT	10uF	20%	50V
C24	1-124-907-11	ELECT	10uF	20%	50V
C25	1-164-159-11	CERAMIC	0.1uF		50V
C26	1-164-159-11	CERAMIC	0.1uF		50V
C27	1-164-159-11	CERAMIC	0.1uF		50V
C28	1-164-159-11	CERAMIC	0.1uF		50V
C29	1-104-664-11	ELECT	47uF	20%	25V
C30	1-104-664-11	ELECT	47uF	20%	25V
C31	1-104-664-11	ELECT	47uF	20%	25V
C32	1-104-664-11	ELECT	47uF	20%	25V
C33	1-104-664-11	ELECT	47uF	20%	25V
C34	1-110-489-11	CAPACITOR	1F		5.5V
C36	1-104-664-11	ELECT	47uF	20%	25V
		< CONNECTOR >			
CN1	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
* CN2	1-564-687-11	PIN, CONNECTOR 3P			
CN3	1-564-321-00	PIN, CONNECTOR 2P			
CN11	1-564-511-11	PLUG, CONNECTOR 8P			
CN12	1-770-649-11	CONNECTOR, FFC/FPC 21P			
		< DIODE >			
D11	8-719-200-02	DIODE 10E2			
D12	8-719-200-02	DIODE 10E2			
D13	8-719-200-02	DIODE 10E2			
D14	8-719-312-47	DIODE RBA-406B			
D16	8-719-987-63	DIODE 1N4148M			
D17	8-719-200-82	DIODE 11ES2			
D18	8-719-200-82	DIODE 11ES2			
D19	8-719-200-82	DIODE 11ES2			
D20	8-719-210-21	DIODE 11EQS04			
D21	8-719-200-82	DIODE 11ES2			
D22	8-719-200-82	DIODE 11ES2			
D23	8-719-933-54	DIODE HZS9A2L			
D24	8-719-987-63	DIODE 1N4148M			
D25	8-719-987-63	DIODE 1N4148M			
		< FUSE >			
⚠F11	1-532-284-00	FUSE, TIME-LAG (630mA/250V) (AEP, UK)			
⚠F11	1-576-098-11	FUSE (630mA/250V) (US, CND)			
⚠F12	1-532-299-00	FUSE, TIME-LAG (5A/250V) (AEP, UK)			
⚠F12	1-576-109-11	FUSE (5A/125V) (US, CND)			
⚠F13	1-532-215-00	FUSE, TIME-LAG (800mA/250V) (AEP, UK)			

Ref. No.	Part No.	Description			Remark	
⚠F13	1-576-099-11	FUSE (800mA/250V) (US, CND)				
		< IC >				
IC11	8-759-633-42	IC M5293L				
IC12	8-759-098-24	IC PQ30RV11				
IC13	8-759-098-24	IC PQ30RV11				
IC14	8-759-066-40	IC PQ05RH11				
IC15	8-759-290-19	IC BA3960				
IC16	8-759-269-92	IC SN74HCU04ANS-E20				
IC17	8-759-604-39	IC M5F78M12				
IC18	8-759-604-45	IC M5F79M12				
		< JACK >				
⚠J1	1-251-234-11	INLET, AC (~AC IN)				
		< COIL >				
⚠L1	1-424-485-11	FILTER, LINE				
		< RESISTOR >				
R11	1-249-437-11	CARBON	47K	5%	1/4W	
R12	1-247-807-31	CARBON	100	5%	1/4W	
R13	1-249-417-11	CARBON	1K	5%	1/4W	F
R14	1-249-441-11	CARBON	100K	5%	1/4W	
R15	1-249-437-11	CARBON	47K	5%	1/4W	
R16	1-247-891-00	CARBON	330K	5%	1/4W	
R18	1-249-401-11	CARBON	47	5%	1/4W	F
R19	1-215-433-00	METAL	3.3K	1%	1/4W	
R20	1-215-421-00	METAL	1K	1%	1/4W	
R21	1-215-423-00	METAL	1.2K	1%	1/4W	
R22	1-215-437-00	METAL	4.7K	1%	1/4W	
R25	1-215-445-00	METAL	10K	1%	1/4W	
R26	1-215-445-00	METAL	10K	1%	1/4W	
R27	1-215-431-00	METAL	2.7K	1%	1/4W	
R28	1-215-433-00	METAL	3.3K	1%	1/4W	
		< SWITCH >				
⚠S1	1-571-722-11	SWITCH, VOLTAGE SELECTION				

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MISCELLANEOUS
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Ref. No.	Part No.	Description
14	1-777-238-11	WIRE (FLAT TYPE)(16 CORE)
58	1-775-227-11	WIRE (FLAT TYPE)(25 CORE)
59	1-775-197-11	WIRE (FLAT TYPE)(21 CORE)
61	1-777-231-11	WIRE (FLAT TYPE)(30 CORE)
62	1-777-232-11	WIRE (FLAT TYPE)(18 CORE)
63	1-533-293-11	FUSE HOLDER
64	1-555-724-00	WIRE, GROUND
204	1-500-304-21	HEAD, OVER LIGHT
⚠208	8-583-009-12	OPTICAL PICK UP KMS-210A/J-N
⚠F11	1-532-284-00	FUSE, TIME-LAG (630mA, 250V)(AEP,UK)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
⚠F11	1-576-098-11	FUSE (630mA, 250V)(US,CND)	
⚠F12	1-532-299-00	FUSE, TIME-LAG (5A, 250V)(AEP,UK)	
⚠F12	1-576-109-11	FUSE (5A, 125V)(US,CND)	
⚠F13	1-532-215-00	FUSE, TIME-LAG (800mA, 250V)(AEP,UK)	
⚠F13	1-576-099-11	FUSE (800mA, 250V)(US,CND)	
FL601	1-517-542-11	INDICATOR TUBE, FLUORESCENT	
M101	A-4660-651-A	MOTOR ASSY (SLED)	
M102	A-4672-170-A	CHASSIS ASSY, BU (SPINDLE)	
M191	A-4660-646-A	MOTOR ASSY (LOADING)	
⚠S2	1-570-117-21	SWITCH, SEESAW (AC POWER)	
S102	1-762-148-11	SWITCH, PUSH (2 KEY)(PROTECT/REFLECT)	
⚠T1	1-429-690-11	TRANSFORMER, POWER	

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ACCESSORIES & PACKING MATERIALS
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Ref. No.	Part No.	Description	Remark
⚠	1-551-812-11	CORD, POWER (US,CND)	
⚠	1-590-910-11	CORD SET, POWER (AEP,UK)	
	1-765-107-11	CORD, CONNECTION	
	1-777-269-11	CABLE, CONNECTION	
	3-859-105-01	MANUAL, OPERATION (ENGLISH)	
	3-859-106-01	MANUAL, OPERATION (FRENCH)	
	3-859-107-01	MANUAL, OPERATION (GERMAN)(AEP,UK)	
	4-980-752-11	LID, BATTERY CASE (for RM-DC2)	
*	4-950-766-01	LABEL, FCC DIGITAL DEVICE (US,CND)	
	4-989-042-01	PLATE (L), KEY BOARD TOP	
	4-989-043-01	PLATE (S), KEY BOARD TOP	
	8-917-571-90	REMOTE CONTROLLER RM-DC2 SET	

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****
HARDWARE LIST
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Ref. No.	Part No.	Description	Remark
#1	7-685-872-09	SCREW +BVTT 3X8 (S)	
#2	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
#3	7-682-561-09	SCREW +B 4X8	
#4	7-685-871-01	SCREW +BVTT 3X6 (S)	
#5	7-682-660-09	SCREW +PS 4X6	
#6	7-682-560-04	SCREW +P 4X6	
#7	7-682-546-09	SCREW +B 3X5	
#8	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#9	7-685-660-29	SCREW +BVTP 4X10 TYPE2 SLIT	
#10	7-682-948-01	SCREW +PSW 3X8	
#11	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
#12	7-685-645-79	SCREW +BVTP 3X6 TYPE2 N-S	
#13	7-685-860-09	SCREW +BVTT 2.6X4 (S)	
#14	7-685-781-09	SCREW +PTT 2X4 (S)	
#15	7-621-775-20	SCREW +B 2.6X5	
#16	7-621-770-67	SCREW +PWH 2.6X6	
#17	7-685-862-09	SCREW +BVTT 2.6X6 (S)	
#18	7-627-852-48	PRECISION SCREW +P1.7X3.5TYPE3	
#20	7-685-105-19	TPG +P 2X8, TYPE 2, NON-SLIT	
#21	7-682-546-04	SCREW +B 3X5	

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